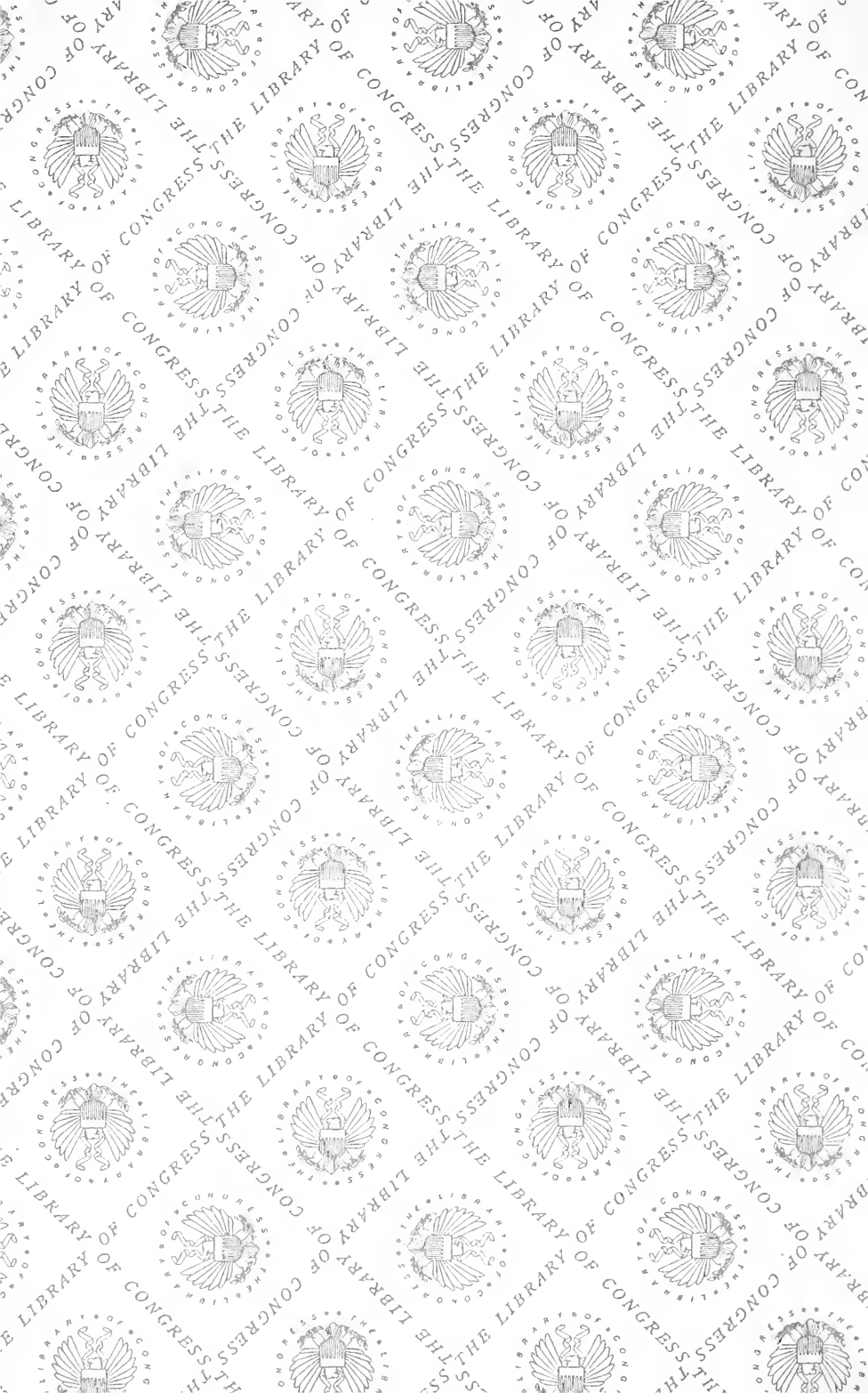
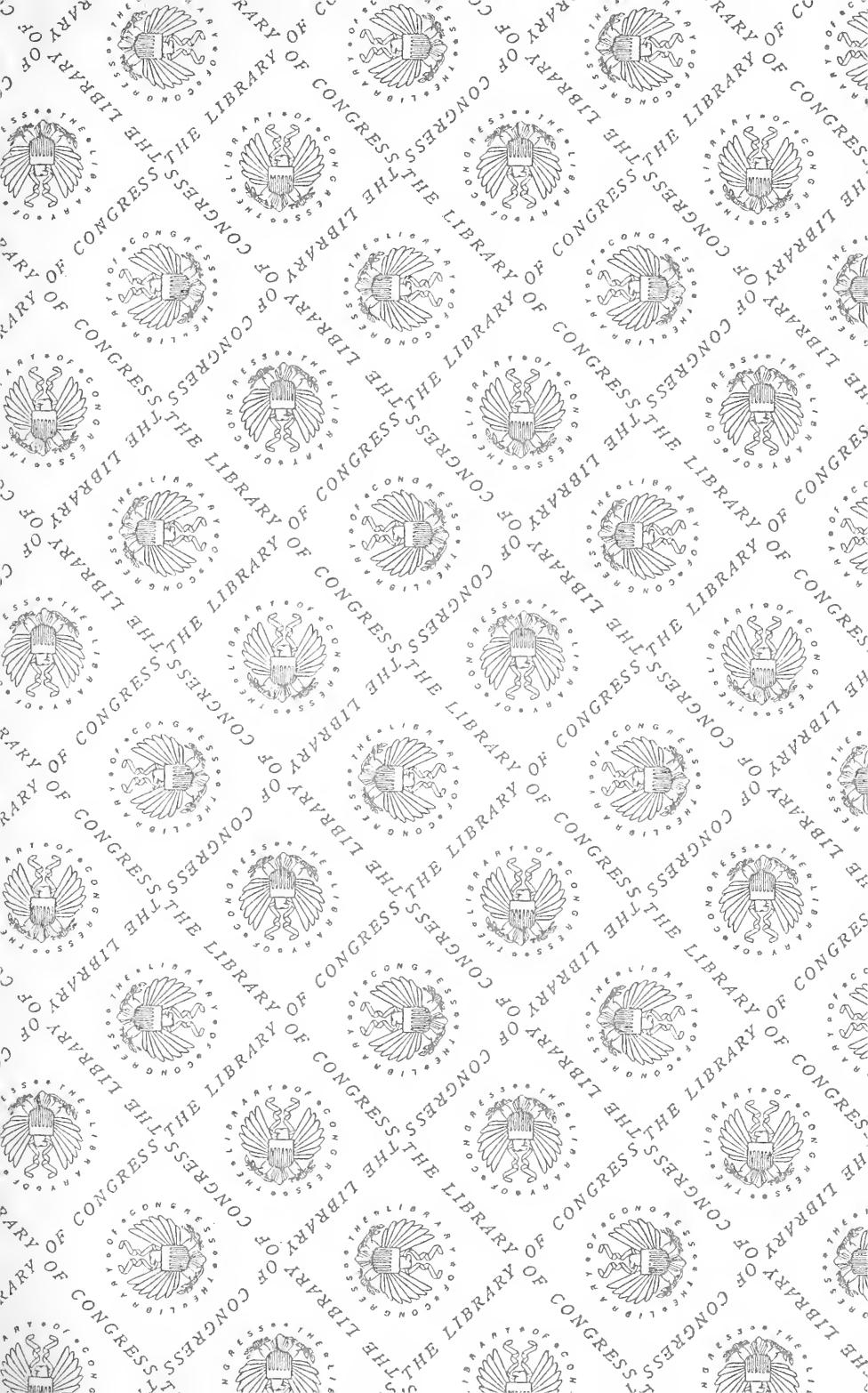


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MAP
OF THE BOUNDARY LINE BETWEEN
THE STATES OF NEW YORK AND NEW JERSEY
IN LANDS UNDER WATER IN KILL VON KULL AND NEW YORK BAY,
from the Baltimore and Ohio Bridge in Arthur Kill near Elizabethport, New Jersey
to the Hudson River opposite to Battery New York City.

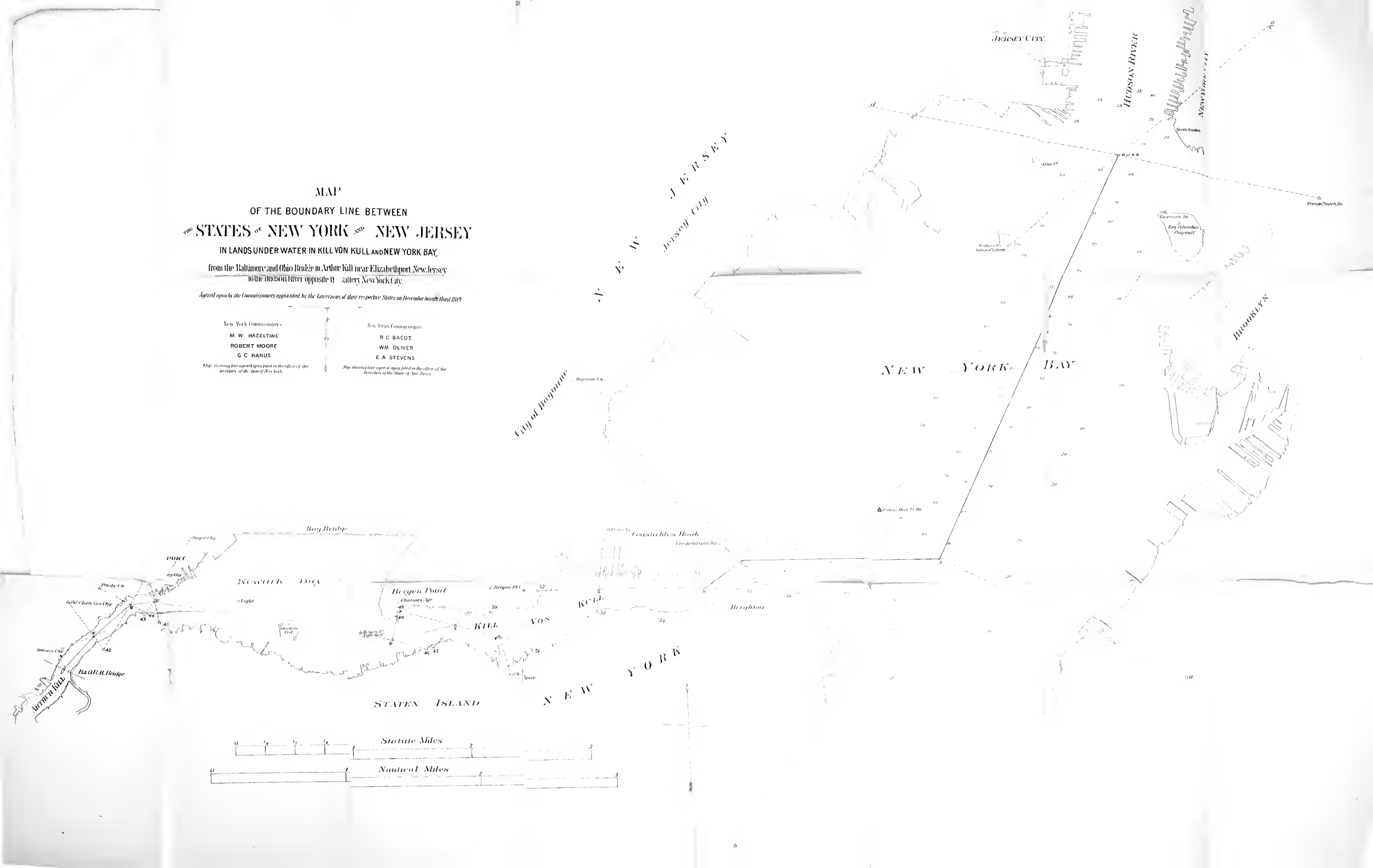
Agreed upon by the Commissioners appointed by the Governors of their respective States on November fourth third 1899

New York Commissioners
M W HAZELTINE
ROBERT MOORE
G C HANUS

Map showing line agreed upon filed in the office of the
Secretary of the State of New York.

New Jersey Commissioners
R C BACOT
WM OLIVER
E A STEVENS

Map showing line agreed upon filed in the office of the
Secretary of the State of New Jersey.



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THE
MAGNETIC
FORCE
OF THE
EARTH

BY
J. H. VAN DER WOUDE

1100

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REPORT
AND
PROCEEDINGS
OF THE
New Jersey Boundary Commission

**APPOINTED TO LOCATE AND MARK OUT,
BY STAKES AND BUOYS,**

The True Boundary Line Between New York and New Jersey,

IN LANDS UNDER WATER

IN THE

**Hudson River, Bay of New York, Kill Von Kull
and Arthur Kill, or Staten Island Sounds,**

**UNDER THE JOINT RESOLUTION OF THE LEGISLATURE OF THE STATE
OF NEW JERSEY, APPROVED FEBRUARY 14, 1888.**

**JERSEY CITY, N. J.:
THE JERSEY CITY PRINTING CO., 37 MONTGOMERY STREET.
1890.**



ELIZABETH

REPORT

AND

PROCEEDINGS

OF THE

New Jersey Boundary Commission

New Jersey, Commission

APPOINTED TO LOCATE AND MARK OUT,
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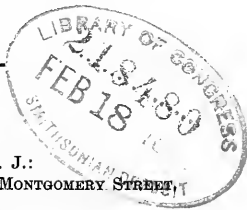
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JERSEY CITY, N. J.:

THE JERSEY CITY PRINTING Co., 37 MONTGOMERY STREET,
1890.



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REPORT.

To the Legislature of the State of New Jersey :

The Commissioners appointed by the Governor under authority of the Joint Resolution of the Legislature of the State of New Jersey, approved February 14, 1888, "to locate and mark out the true Boundary Line between the State of New Jersey and the State of New York, in lands under water in the Hudson River, New York Bay, Kill Von Kull and Arthur Kill or Staten Island Sounds," respectfully submit a Report of their proceedings, together with a description of a line agreed upon and a copy of the agreement made with the Commissioners appointed for a like purpose on the part of the State of New York.

The authority under which the Commissioners have conducted this work is derived from the Joint Resolution above mentioned, which Joint Resolution is known in the Session Laws as Joint Resolution No. 1, Laws of 1888, page 551, &c.

In 1886, a resolution was passed by New Jersey, and afterwards by New York, providing for the settlement of the dispute as to the Boundary Line in Raritan Bay; Commissioners were appointed and the Line agreed upon and reported to the Legislature; the work of this Commission proving satisfactory, a Joint Resolution was passed by this State providing for a Commission to settle the dispute as to the Boundary Line in the Hudson River, New York Bay, Kill Von Kull and Arthur Kill or Staten Island Sound. New York followed in 1888, with an Act extending the jurisdiction of the Raritan Bay Commission, so as to include the Boundary Line as far as the Hudson River; and, in 1889, further extended the jurisdiction of the Commission so as to make it co-equal with that of New Jersey.

Robert C. Bacot, George H. Cook and William M. Oliver were appointed Commissioners by Governor Green on the part of New

Jersey, and the original Raritan Bay Commission of New York, Mayo W. Hazeltine, Robert Moore and Lieutenant G. C. Hanus, U. S. N., was continued. The Commission at once organized by the election of George H. Cook as Chairman, and Edward P. Doyle as Secretary, and proceeded with its work.

In the Spring of 1888, however, the Commission was seriously crippled by the absence of Lieutenant Hanus, who acted as the Engineer for the New York Commission. In December, 1887, Lieutenant Hanus was detached from the Raritan Bay Commission, and ordered to join the United States Steamship Nipsic, bound for the South Pacific. He sailed from New York in January, 1888, and, although the Legislatures of New York and New Jersey passed resolutions requesting his recall, he was unable to join the Commission until August, 1888, having been detached at Callao, Peru, and ordered home. Immediately upon his return, work was begun upon the line in the Arthur Kill, and an agreement was reached as far as the western end of the Kill Von Kull. This work was very carefully and correctly done, and, although vigorously prosecuted, was not completed until the end of the season. The Commissioners were then compelled to ask the indulgence of the Legislature for additional time to complete the work assigned them. The importance of the interests involved and the necessity for slow and careful work, together with the fact that no funds were available from the State of New York for the employment of Engineers, and that the computations must be made by the Commissioners themselves, prevented the Commissioners from reaching a determination as to the further boundary line, although much progress was made toward an agreement.

An additional cause of delay was the necessity of securing for the use of the Commission, maps showing the Shore Lines of the two States as they existed at the time of the treaty of 1834, (the work of the Commissioners being merely to locate and mark the line agreed upon in the treaty of 1834.)

A Committee of the Commission, consisting of Commissioner Bacot and Lieutenant Hanus, were appointed to secure such a map; they found their mission an extremely difficult one, but, after long and tedious search, they succeeded in obtaining U. S. Coast and Geodetic Survey maps, made a few years after the adoption of the

treaty of 1834. These maps were then compared with those of recent date, and maps made for the Commission showing both Shore Lines, that of 1834 and that of 1888. The Commissioners were thereby enabled to make an exact division of the lands under water as determined by the Commissioners of 1834, and at the same time, having the present Shore Lines before them, were enabled, when it became necessary, to make the compromises required by commercial interests.

The work of determining the boundary line then began. The land under water divided by the previous Commission in Raritan Bay was, it is true, of great value for shell fish cultivation, but its worth could not be compared with that in the Arthur Kill, Kill Von Kull, or even the Hudson River.

There, in view of the possible construction in the future of docks and basins, every foot of land became extremely valuable, and the computations of area and divisions must, of necessity, be careful and accurate. The original Committee, who had prepared so successfully the preliminary boundary line in Raritan Bay under the previous Commission, were appointed to perform the same work of the present Commission, and began at once the preparation of experimental lines upon which the Commissioners could base their final agreement. This Committee consisted of Robert C. Bacot on the part of New Jersey, and Lieutenant G. C. Hanus on the part of New York; both were practical engineers and both thoroughly familiar with the territory in question. Mr. Bacot had been for years Engineer of the Riparian Commission of New Jersey, and Lieutenant Hanus had been for three years in charge of a work of the U. S. Coast and Goedetic Survey in the locality about to be divided.

In the establishment of this line the Commissioners proceeded upon the same system of compromises that characterized their settlement of the dispute in Raritan Bay. The boundary was made, a succession of straight lines, equal concessions being made by both States to secure the desired result.

The work proceeded slowly, being necessarily delicate and complicated, in the narrow and winding channel of the Arthur Kill and Kill Von Kull, and it was not until the end of this present year that the line was finally determined on.

An agreement as to its location in New York Bay was reached with difficulty; there was a wide difference of opinion at the start in the minds of the Commissioners as to where this line should be placed. The terms of the treaty of 1834, in which the boundary line was described as being the "middle" of the River and Harbor of New York, through the Kill Von Kull and Arthur Kill to the main sea, was not in itself sufficiently definite to enable any absolute or incontrovertible opinion to be formed. It became merely a matter of conjecture, or inference, as to what was originally the intention of the Commissioners, long since dead, who made the treaty. Whether was meant the "middle" of the area of water, without regard to its depth, or whether the "middle" of the channel was intended, was, of course, not known.

The question was exhaustively considered and discussed by the Commissioners, and many experimental lines were drawn before the final determination was reached. In fact, this question was one of the most difficult to be determined by the Commission, and it was not until November of this present year that a satisfactory conclusion was reached.

The claim of the New Jersey Commission* that the boundary line should be the "middle" of the channel, was based upon well established precedents in boundary settlements, and in addition was fortified by the decision of the Court of Appeals of the State of New York, in the well-known case of the People of that State against the Central Railroad Company of New Jersey, in which the Court of Appeals held that the "middle" of the *filum aquæ*, or channel of the Bay of New York, was the boundary line determined by the treaty of 1834; this decision, coming as it did from the highest judicial interpreters of the law in the State of New York, had the greatest possible influence with the Commissioners from that State; and the claim of New Jersey was finally allowed, and the line they claimed agreed upon.

It is, perhaps, but fair to state the position taken by the New York Commissioners in this matter, and to do so we give the re-

* See Report of Commissioners of N. J., June 3d, 1889—in Appendix.

marks of Mr. Mayo W. Hazeltine, one of the Commissioners, who, upon the motion to agree upon this line, spoke as follows :

“ Mr. Chairman, and Gentlemen of the Joint Boundary Commission :

The Commissioners from New York accept the line proposed by the Commissioners from New Jersey, because they believe it to be in exact accordance with the decision of the highest judicial authority in their State, the Court of Appeals. In passing the Act, under which they hold their position, the Commissioners believe that the Legislature intended that they should simply mark out the line, as determined by the treaty of 1834, and that in locating this boundary line they must be guided by the judicial interpretations of their highest court.”

After the settlement of the dispute in New York Bay, the Commissioners proceeded to the consideration of the line in the Hudson River, and no trouble was experienced in making a satisfactory settlement.

The Commissioners can, therefore, report to the Legislature, that as far as the location of the line theoretically is concerned, their work is finished, and finished satisfactorily. Each portion of the boundary line, from its commencement at the junction of the Arthur Kill and Raritan Bay, up the winding channel of the Arthur Kill, through the Kill Von Kull, and the extremely valuable territory of the New York Bay and the Hudson River, has been agreed upon cheerfully and unanimously by the entire Commission, both from New York and New Jersey, and the Commissioners feel that, as near as possible, in a work of such magnitude and importance, exact justice has been done each State.

The other branch of the work of the Commission, that of marking this line by stakes, buoys or monuments, has been begun, and much has already been accomplished, the line having been monumented from the entrance of the Arthur Kill to the junction of the Kill Von Kull with New York Bay, as shown in the Appendix to this Report.

The system adopted in marking the line, and which will be explained in the succeeding chapters of this Report, will, it is

believed, make it easy for any citizen, by taking a little trouble, to determine exactly at any place his position on the water, as far as the boundary line is concerned.

The monuments are of granite, placed in a bed of cement, and can be readily seen. Their character is such that they must remain in their position long after the present generation shall cease to exist.

Complete and full description of each one has been made and will accompany this Report, and be filed with the Secretary of State. The completion of the work of marking the remainder of the line must be delayed until the Spring of 1890, and can then soon be finished.

A Committee in charge has begun the compilation of the necessary data, with full descriptions of the lines, and their work will be found, as far as finished, in this Report. The maps will at once be signed, and filed with the Secretary of State, together with all the data ready; the further data will be sent with the final Report, to the Legislature of 1891.

In September, 1889, the Commission sustained a severe loss in the death of its permanent Chairman, Dr. George H. Cook, of New Jersey.

The last meeting attended by Dr. Cook was that of September 20, 1889.

Two days later he was dead.

Dr. Cook had been associated with the Commission since its organization in 1887, and had rendered it valuable service.

Thoroughly familiar with every branch of its work, with years of experience as member of previous Commissions, and as President of the State Geological Survey of New Jersey, Dr. Cook was especially fitted to preside over and direct the deliberations of the Commission. In addition, his uniform courtesy, his purity of mind and character and unvarying kindness had endeared him to every member, and strengthened his influence and ability to procure a satisfactory settlement of the disputes arising before the Commission.

The sentiment of the Commissioners at his loss is best expressed by the preamble and accompanying resolutions offered by Mr. Hazeltine, of New York, at the meeting succeeding his death.

The preamble and resolutions are as follows :

“WHEREAS, Dr. George H. Cook had been for three years, a member of the Joint Commission appointed by the Governors of New York and New Jersey to define the boundaries of their respective States ; and

“WHEREAS, As Chairman of the said Commission Dr. Cook had, by virtue of his scientific acquirements, notable abilities and extensive experience, signally contributed to the performance of the work delegated the Commission;

“*Resolved*, That the members of the Joint Boundary Commission have learned with profound regret of the death of their Chairman, Dr. George H. Cook, and would respectfully tender the assurance of their sincere sympathies to the family of the deceased,

“*Resolved*, That the Secretary be requested to forward to the family of the deceased a copy of these Resolutions.”

It was, indeed, a source of profound regret that Dr. Cook, who had contributed so much towards the success of the Commission, and who was so much interested in its work, should not have been permitted to see the accomplishment of its labors.

Mr. Robert C. Bacot, who also had been associated with the Commission since its creation, and who had worked indefatigably for its success, was, on motion of the New York Commissioners, elected permanent Chairman in Mr. Cook's stead. His place on the Commission was filled by the appointment of Colonel Edwin A. Stevens, of Hoboken, New Jersey.

The Commissioners congratulate the people of both States upon the successful completion of this work.

After two centuries of wrangling and dispute, the boundary line between New York and New Jersey in lands under water is finally and conclusively settled ; the determinations of former Commissions were indefinite and unsatisfactory, and increased rather than settled the complications. The line now, however, marked and monumented, is absolute and definite. There can be no dispute or difference of opinion as to its location ; its position at any point can be as easily demonstrated as the simplest mathematical problem.

The Commissioners desire to make special mention of the valuable services rendered by Lieut. G. C. Hanus, U. S. Navy, during the entire progress of the work.

To his scientific acquirements and skill in the accurate determination of the geographical position of the boundary line, is due the completeness of the work in its various parts, thereby rendering in the future any question of the true location of the line impossible.

To Messrs. Vermeule and Bien, Civil Engineers, to whom was entrusted the locating and placing of the monuments for readily ascertaining the positions of the line, great credit is due for the very satisfactory performance of their work.

The Commissioners would also acknowledge the many courtesies received from the United States Coast and Geodetic Survey, and from the Light House Department at Washington, D. C.

The agreement between the States of the Boundary Line with the maps showing the same was executed in duplicate by the Joint Boundary Line Commission on the 23d day of December, 1889, and was filed in the office of the Secretary of State at Trenton, December 31, 1889.

R. C. BACOT.
W. M. OLIVER.
E. A. STEVENS.

Trenton, January 18, 1890.

AGREEMENT.

An Agreement made the twenty-third day of December, in the year eighteen hundred and eighty-nine, between Mayo W. Hazeltine, Robert Moore and Lieut. G. C. Hanus, U. S. N., Commissioners on the part of the State of New York, and Robert C. Bacot, William M. Oliver and Edwin A. Stevens, Commissioners on the part of the State of New Jersey.

WHEREAS, By Chapter 69, Laws of 1887, the Governor of the State of New York was authorized to appoint three Commissioners with full power on the part of the State of New York, to meet with the Commissioners appointed, or to be appointed, for a like purpose on the part of the State of New Jersey, and with them to locate and

mark out by proper monuments and buoys the true boundary line between the two States in lands under water in Raritan Bay; and

WHEREAS, The jurisdiction of the said Commissioners was continued and extended by Chapter 159, Laws of 1888, and Chapter 212, Laws of 1889, so as to include the Arthur Kill, Kill Von Kull, New York Bay and the Hudson River; and

WHEREAS, The said Mayo W. Hazeltine, Robert Moore and Lieut. G. C. Hanus, U. S. N., were duly appointed Commissioners on the part of the State of New York, for the purposes mentioned in the said acts; and

WHEREAS, By an Act of the Legislature of the State of New Jersey, passed February 14, 1888, entitled, "A Joint Resolution authorizing the appointment of a commission to locate and mark out the boundary line between the State of New Jersey and the State of New York, in lands under water in the Arthur Kill, Kill Von Kull, New York Bay and the Hudson River;" and

WHEREAS, George H. Cook, Robert C. Bacot and William M. Oliver were duly appointed Commissioners for the purpose of said Act; and

WHEREAS, George H. Cook having died, Edwin A. Stevens was appointed in his stead, clothed with the same powers; and

WHEREAS, The said Commissioners acting for and on behalf of their respective States, have entered upon the performance of the duties imposed upon them by the said acts of their respective Legislatures, and have in pursuance of the authority to them severally given as aforesaid, agreed and hereby do agree upon a boundary line between the two States in lands under water in the Arthur Kill, Kill Von Kull, New York Bay and the Hudson River, and do locate the same as follows:

First—Starting from a point (at the conclusion of the boundary line in Raritan Bay) and marked for the purposes of this Agreement, A.

This point is equi-distant between the southwesterly corner of the dwelling house of David C. Butler, at Ward's Point, on Staten Island, in the State of New York, and the southeasterly corner of the brick building on the lands of Cortland L. Parker, at the inter-

section of the westerly line of Water street with the northerly line of Lewis street, in Perth Amboy, in the State of New Jersey.

The line runs thence in a succession of straight lines through the Arthur Kill, the Kill Von Kull, New York Bay and the Hudson River to a point marked "J J," for the purposes of this Agreement.

This point "J J" is at the extreme northern limit of the boundary line in lands under water, and from this point the line runs westerly to a rock which is described in the Report of the New York and New Jersey Boundary Commission of 1883 as marking the eastern end of the boundary line between New York and New Jersey as determined upon by the Royal Boundary Commission of 1769.

The absolute geographical locations of the point at the place of beginning and the point of conclusion are as follows:

Point A (place of beginning).

Latitude. Seconds in Metres. Longitude. Seconds in Metres.
(Latitude and Longitude not given. Description sufficient.)

Point J J (place of conclusion).

Latitude. Seconds in Metres. Longitude. Seconds in Metres.
40° 59' 49". 74N. 1534.38. 74° 53' 38". 57W. 901.46.

The points at which changes of direction occur in the boundary line, from the place of beginning to the place of conclusion, are for the purposes of this Agreement lettered or numbered, and their determination and absolute geographical positions are as follows:

Latitude.					Longitude.				
Deg. Min. Sec.			Seconds in Metres.		Deg. Min. Sec.			Seconds in Metres.	
B	40	30	31	N. 956.2	74	15	30	.74 W	723.9
C	40	30	56	N. 1727.33	74	15	16	.22 W	382.
D	40	31	15 .07	N. 464.8	74	14	47 .15	W	1109.9
E	40	22	31 .9	N. 984.	74	15	02 .5	W	58.8
F	40	32	57 .38	N. 1769.9	74	14	52 .42	W	1233.9
G	40	33	32 .68	N. 1008.	74	13	54 .57	W	1284.

Latitude.				Seconds in Metres.	Longitude.				Seconds in Metres.
Deg.	Min.	Sec.			Deg.	Min.	Sec.		
H 40	33	25 .03	N.	772.	74	13	06 .29	W	148.
I 40	33	37 .54	N.	1157.9	74	12	53 .95	W	1269.4
J 40	34	25 .03	N.	772.	74	12	38	W	893.7
K 40	35	16 .12	N.	498.	74	12	27 .55	W	647.9
L 40	35	51 .87	N.	1599.9	74	12	00	W	0.
No. 1 40	36	01 .	N.	30.8	74	12	00	W	0.
No. 2 40	36	21 .45	N.	661.6	74	12	18 .88	W	443.9
No. 3 40	36	51 .02	N.	1573.7	74	12	15 .48	W	363.9
No. 4 40	37	00	N.	0.	74	12	10 .21	W	240.
O 40	37	27 .36	N.	844.1	74	12	15 .61	W	366.9
P 40	37	43 .24	N.	1333.7	74	12	09 .69	W	227.9
R 40	37	53 .36	N.	1645.9	74	12	10 .12	W	238.
S 40	38	04 .86	N.	149.9	74	11	54 .87	W	1289.3
Position.				Centre of Baltimore and Ohio Bridge Pier.					
40	38	15 .31	N.	472.3	74	11	47 .97	W	1125.9
A' 40	38	30 .92	N.	953.7	74	11	30 .63	W	719.8
B' 40	38	45 .38	N.	1399.8	74	11	09 .79	W	229.9
C' 40	38	47 .13	N.	1453.7	74	10	55 .42	W	1301.8
D' 40	38	30 .79	N.	949.7	74	08	36 .68	W	861.9
E' 40	38	36 .89	N.	1137.9	74	08	00	W	0.0
F' 40	38	31 .37	N.	967.6	74	07	35 .15	W	825.8
G' 40	38	52 .66	N.	1624.3	74	06	36 .94	W	867.9
H' 40	38	52 .66	N.	1624.3	74	05	37 .88	W	889.8
I' 40	39	05 .05	N.	155.77	74	05	14 .64	W	343.09
J' 40	39	04 .94	N.	152.38	74	03	22 .25	W	522.65
K' or									
AA 40	42	00	N.	0.0	74	01	36 .50	W	857.0
BB 40	43	04 .68	N.	144.36	74	01	26 .59	W	624.07
CC 40	45	26 .82	N.	827.3	74	00	52 .	W	1219.66
DD 40	49	35 .55	N.	1096.61	73	57	50 .38	W	1180.6
EE 40	51	03 .62	N.	111.67	73	57	11 .69	W	273.78
FF 40	53	19 .05	N.	587.64	73	55	48 .77	W	1141.7
GG 40	55	40 .3	N.	1243.13	73	54	52 .82	W	1235.61
HH 40	56	48 .22	N.	1487.48	73	54	33 .35	W	780.06
II 40	58	54 .39	N.	1677.82	73	53	47 .63	W	1113.58
JJ 40	59	49 .74	N.	1534.38	73	53	38 .57	W	901.46

Second. The monumental marks by which said boundary line shall hereafter be known and recognized have been carefully described, their absolute geographical positions given, and this description and location will be filed in the office of the Secretary of State of New York and the Secretary of State of New Jersey.

Third. The maps accompanying and filed with this Agreement, showing the location of the above-mentioned boundary line between the State of New York and the State of New Jersey in lands under water in Arthur Kill, Kill Von Kull, New York Bay and the Hudson River, and of the monumental marks by which such line may be distinguished and known, duly authenticated and attested by the signatures of the aforesaid Commissioners, and placed on file in the offices of the Secretaries of State of the respective States, shall constitute the permanent and authenticated record of said boundary line, and are hereby adopted by the parties hereto, and made parts of this Agreement.

In Witness Whereof, the said Commissioners have hereto set their hands and seals in duplicate, this twenty-third day of December, in the year of our Lord eighteen hundred and eighty-nine.

M. W. HAZELTINE,	[L. s.]	R. C. BACOT,	[L. s.]
ROBERT MOORE,	[L. s.]	W. M. OLIVER,	[L. s.]
G. C. HANUS,	[L. s.]	E. A. STEVENS,	[L. s.]
Attest:			

EDWARD P. DOYLE,
Secretary Joint Boundary Commission.

STATE OF NEW JERSEY, }
DEPARTMENT OF STATE. }

I, Henry C. Kelsey, Secretary of State of the State of New Jersey, do hereby certify that Robert C. Bacot, Esq., Chairman Joint Boundary Commission, etc., did, on the thirty-first day of December, A. D. 1889, file in this Department an Agreement, endorsed "Agreement between the State of New York and the State of New Jersey of the true boundary line between the two States in lands

under water in the Arthur Kill, Kill Von Kull, New York Bay and the Hudson River, dated December 23, 1889," as by the statutes of this State required.

In Testimony Whereof, I have hereunto set my hand and affixed my official seal, at Trenton, this thirty-first day of December, A. D. 1889.

[SEAL.]

HENRY C. KELSEY,
Secretary of State.

APPENDIX.

APPENDIX.

At a meeting of the Joint Boundary Commission, held June 3d, 1889, the following report was presented by the Commissioners from New Jersey :

To the Commissioners appointed by the States of New York and New Jersey, to locate and mark out the boundary line between the respective States in the Arthur Kill, the Kill Von Kull, New York Bay and the Hudson River :

The Commissioners of the State of New Jersey present for your consideration the accompanying chart of the Bay of New York, published by the United States Coast Survey Department, upon which is shown (in red) the line which, in their judgment, should constitute, as far as it extends, the boundary line between the respective States. This line commences on the map at the point last agreed upon by the Joint Boundary Commission, at the entrance of the Kill Von Kull (marked I') ; from thence it runs North 90 deg. 05' East about 2,887 yards to a point in New York Bay (marked J') ; thence it runs North 24 deg. 40' East through and along the channel or deep water of New York Bay, in a straight line about 6,495 yards to a point on the map marked K' or AA.

The basis of the claim of the New Jersey Commissioners to this line will appear from a brief sketch of the controversy between the States of New York and New Jersey, in relation to their respective territorial rights and jurisdiction in and over these waters and the lands under the same.

Prior to 1833, the State of New York claimed that its territorial limits, opposite to the City of New York, extended to low water mark on the West Shore of the Hudson River. The Revised Statutes of that State describe the State boundary as proceeding from "a rock on the West shore of Hudson River" (in the line of

the forty-first degree of North latitude), "thence Southerly along the West shore, at low water mark, of the Hudson River."

New Jersey never assented to or acquiesced in this claim. On the contrary, in 1829, that State commenced a suit against the State of New York, in the Supreme Court of the United States, claiming that the said State of New Jersey was "justly entitled to the exclusive jurisdiction and property of and over the waters of Hudson River, from the forty-first degree of North latitude to the Bay of New York, to the *filum aquæ* or midway of said River, and to the midway or channel of said Bay of New York, together with the land covered by the Water of the said River and Bay." This suit was not pressed, but it resulted in the appointment by each State of three Commissioners to negotiate and agree respecting the territorial limits and jurisdiction of the State of New York and the State of New Jersey. These Commissioners formulated an agreement, or treaty, which was formally ratified by both States in 1834. By this treaty, New York abandoned its previous claims, and the boundary between the two States was declared (Article I.) to be the middle of the Hudson River, the Bay of New York, and the waters between Staten Island and New Jersey, subject to certain exceptions securing to New York jurisdiction over the waters of New York Bay and the Hudson River south of the mouth of Spuyten Duyvel Creek.

These apparently contradictory provisions of the treaty gave rise to renewed controversy, which was finally settled by a decision of the New York Court of Appeals in 1870, in the case of the People of the State of New York against the Central Railroad Company of New Jersey. (A copy of which decision is herewith submitted.) This Railroad Company was engaged in extensive improvements in that part of New York Bay known as Communipaw Cove, by reclaiming and extending out from the high water mark of the New Jersey shore to the channel of the Hudson River, and New York claimed jurisdiction over said land and improvements, under the aforesaid treaty.

The Court of Appeals reviewed exhaustively the questions of boundary and jurisdiction, and the bearing of the treaty of 1834 thereon, and the substance of its decision was :

1. The treaty of 1834 fixes definitely the boundary line between New York and New Jersey at or near the middle of the Hudson River and of the *filum aquæ* or channel of the Bay of New York. It relinquished whatever claim or right of property New York formerly had to the bed of Hudson River and New York Bay between the centre line thereof and low water mark on the New Jersey shore.

2. The jurisdiction over the waters of Hudson River and New York Bay, given to New York in that treaty, was a qualified and limited jurisdiction conferred for police and sanitary purposes, and to promote the interests of commerce, and was not designed to confer or create control over the lands or domains of New Jersey under the waters of New York Bay and the Hudson River lying west of the said boundary line.

The decision of the Court of New York is also in accordance with the interpretation of several important national treaties made by the Federal Government, of which may be named the North-Western or Washington Treaty with Great Britain; and the Rio Grande Treaty with Mexico. In both of the above treaties the boundary line between the nations is described as being in the middle of the waters of the bays or rivers through which it runs; yet, we find, on an inspection of the accompanying maps upon which these lines are marked, that where islands (as in the case of Ellis and Bedloe Islands in New York Bay) intervene, the line as laid down follows the *filum aquæ* or channel of such bay or river.

The location of the line as recommended by the New Jersey Commissioners, is, therefore, in accordance with the decisions of the highest court of New York. It is, moreover, an eminently equitable location, for in no other way can the equal enjoyment of the navigable waters of the Bay of New York be secured to New Jersey, for the reason that the largest part of the Western or New Jersey side of the Bay consists of flats extremely shallow and entirely useless unless reclaimed and improved for Wet Basins, Warehouses and other conveniences for commerce, and access to deep water would be essential to such improvement.

THE COMMISSIONERS OF NEW JERSEY,

By R. C. BACOT, *Committee.*

June 3, 1889.

Descriptions of Monuments for ascertaining the Boundary Line between the States of New Jersey and New York, in Arthur Kill or Staten Island and Kill Von Kull Sounds.

MONUMENT No. 1.—For range through to Great Beds Light-house—dp, 680.64 ; dm, 1081.61. This monument is at Perth Amboy, N. J., on the property of Abr. Slaght, in the rear of his blacksmith's shop—2 feet from door sill. His shop is on the east side of street running along Kill, and adjoins C. M. Whittaker's Marine Railway.

MONUMENT No 2.—For range through B to low brick chimney, Perth Amboy—dp, 693.23 ; dm, 431.03. This monument is in the Cliff Park Grove at Tottenville, owned by C. C. Ellis, at present leased to J. H. Starin. It is on the west slope of steep bank almost directly opposite the Ferry Dock in Perth Amboy. Monument is 52 yards north of line fence between Biddle and C. C. Ellis's, and 32 yards from high water mark. The low chimney in Perth Amboy to which this monument ranges is one connected with the Roesster Chemical Works, and is near the N. W. Corner of Water and Commerce streets. It is about 60 feet high.

MONUMENTS Nos. 3 and 4.—For range through B—dp, 1077 ; dm, 300 (for most westerly monument). These monuments are on the property of W. H. B. Totten, near the west slope of bank. Most westerly monument is just about opposite the opening of a street in Perth Amboy, running E. and W. This street is the first one south of the P. A. Terra Cotta Works. This monument is 35 yards N. of line fence between Robinson and Totten. The other monument is 41.75 metres N. Easterly on this range from the other monument. Is in same property, and is just south of a gully running in from the Kill.

MONUMENT No. 5 —For range through C to Lehigh Valley R. R. workshop chimney—dp, 1363.55 ; dm, 198.46. This monument is on Staten Island, in the door yard of property of David Van Name, just about opposite the P. A. Terra Cotta Works. It is near a large willow tree in the rear of the house, 3.2

metres from line fence between Van Name and Totten, and 19.6 metres to N. W. corner of house. The chimney in this range is attached to the car shop at the works of the Lehigh Valley R. R., just on the northern limit of Perth Amboy.

MONUMENT No. 6.—For range through D to Kreisher's chimney—dp, 1709.67; dm, 1311.68. This monument is on Staten Island, in property of John M. Sleight. The monument is two metres from high water mark, and 8.5 metres from N. E. corner of line fence between J. M. Sleight and property owned by the heirs of Joseph A. Sleight.

MONUMENT No. 7.—For range through C to Fire Brick Works chimney—dp, 1808.45; dm, 1050.66. This monument is on Staten Island, on property of Alfred H. Sprague. It is 14.85 metres from line fence between Sprague and Henry Christopher, and 3.1 metres alongside line fence to the line of Fisher street.

MONUMENT No. 8.—For range through D to Boynton's chimney—dp, 75.88; dm, 948.83. This monument is on Staten Island, on property of Capt. Oliver Weir. It is in the door yard of his house under a small tree, 1 metre from fence line running parallel with water front and 7.5 metres from fence line between Weir and Mrs. R. Craft, and 15.6 metres to the N. E. corner of Weir's house.

MONUMENT No. 9.—For range through E to Boynton's chimney, and F to Mon't (12 in. N. J.)—dp, 1146.3; dm, 1027.1. This monument is on the Guion property on Staten Island, opposite the Seward Hotel, N. J. The monument is about 210 feet N. W. of the most northerly of two houses on the property, and is 1 foot S. of the line fence separating Guion's property from Boyd's. It is on N. W. slope of hill, falling gently to Arthur Kill 275 feet distant.

MONUMENT No. 10.—For range through E to Kreisher's chimney—dp, 1568.5; dm, 489.9. This monument is 19 metres west of road running along water front from Seward Hotel to Central Railroad of New Jersey depot, on property of John Taylor Johnson, about 259 metres from N. W. corner of hotel; also 19.1

metres W. of west gutter of roadway, and 2.8 metres southward from S. E. corner of residence.

N. B.—This monument was afterwards removed 5.8 metres further south along line E to Kreisher's chimney.

MONUMENT No. 11.—For range through F to paper mill chimney—dp, 1664.61; dm, 495.9. The monument for range through F to paper mill chimney is on property of John Taylor Johnson, at Sewarren, N. J., on the west side of the road from Sewarren Hotel, along water front to station of C. R. R. of N. J. It is about 9 metres from row of trees in edge of sidewalk nearest roadway on west side, 57 metres north from large willow tree in doorway of residence. There are witness stones on the range line 1 metre distant eastward and westward of the monument.

MONUMENT No. 12.—For range through F to Monument No. 9—dp, 1195.05; dm, 245. This monument is on the southeast side of the road leading from Sewarren northward, and running along edge of meadow. The monument is in line with a row of maple trees that line the edge of the road. It is 43 metres along range line to edge of meadow; 2.4 metres to tree on south and 5.1 metres to tree in north. It is on the property of John Taylor Johnson.

MONUMENT No. 13.—For range through G to Smoky Point Monument No. 15; dp, 1672.3; dm, 371. Monument is on the property of Thomas Marsh, on the south slope of the bank 12 feet from the edge of the salt meadow, 400 yards from main road to Sewarren.

MONUMENT No. 14.—For range through G to paper mill chimney; dp, 66.17; dm, 1050.88. Monument is on property of Henry A. Turner in open field, next to meadow, near the fence about 200 yards east of his house and 83 yards west of large hickory tree.

MONUMENT No. 15.—For range through G to Monument (No. 13, N. J.); dp, 610.45; dm, 985.77. This monument is on Staten Island, on the property of John Dissosway. The range also

passes through the U. S. Coast and Geodetic Survey Station. Smoky Point Monument is on the edge of the upland about 7 feet higher than the meadow. It is 124.2 metres along the range from the water to the monument, and 12.2 metres from edge of meadow. It is 96 yards to the N. E. corner of John Dissosway's house.

MONUMENT No. 16.—For range through H to Melvin chimney—dp, 497.02; dm, 290.68. This monument is at Rossville, Staten Island, on the estate of Caleb Lyon. It is 2 metres south of road, and 7.7 metres W. of line fence, and 85 yards eastward from N. E. corner of Lyon's house.

MONUMENT No. 17.—For range through I to Melvin chimney—dp, 448.21; dm, 203.05. This monument is at Rossville, on Staten Island, on property of Miss Mary Cole. It is on the east slope of decline, 1 metre from fence dividing her dooryard from pasture. It is also 26.4 metres along fence to public road, and 46.1 metres along public road, eastward to small creek or gut.

MONUMENT No. 18.—For range through H to Monument (No. 20)—dp, 505.84; dm, 98.04. This monument is at Rossville, Staten Island, on the property of Mrs. H. O. Seguine. It is just inside the fence along public road. It is 7 metres from line fence between Mrs. Seguine and John H. Dissosway, and is 22.2 metres from street intersecting public road.

MONUMENT No. 19.—For range through I to Monument 20 in N. J.—dp, 831.63; dm, 909.42. This monument is in Staten Island, on the property of Harmon Decker. It is on the north slope of hill, 2 metres from edge of meadows, 46 yards from public road and 130 yards from fence corner of line fence between Thomas P. Hardy and Decker.

MONUMENT No. 20.—For range through H to Monument 18, I to monument 19—dp, 1554.24; dm, 295.24. This monument is at Star Landing, N. J., on the property of T. Sawyer. It is 1.5 metres from the line fence between Milton Arrowsmith and Thomas

Sawyer, and 100 yards northeasterly to the corner of fence around Arrowsmith's barn yard. Monument ranges through H and I to two monuments on Staten Island.

MONUMENT 21—Ranges through J to Melvin chimney.—dp, 235.16; dm, 1291.7. This monument is at Star Landing, N. J., on property of Thomas Sawyer, 300 yards north of his house. It is 35 yards south of where the uplands turn to the west.

MONUMENTS 22 and 23—For range through J.—(23) dp, 1098.52; dm, 1264.83; (22) dp, 998.10; dm, 1150.66. These monuments are in New Jersey, on the property of Carl Rectnagle. They are both on the upland. The more easterly monument is under a locust tree, and is twenty feet from the meadow and five feet from the fence. The more westerly monument is 140 yards east of the public road on north end of upland where upland turns to the west. Monument is 30 feet from an oak tree, and 10 feet from the meadow. The monuments are 152.05 metres apart.

MONUMENT 24—For range through K to Mon't 29, Staten Island—dp, 1811.1; dm, 1052. This monument is near Star Landing, N. J., in property of the estate of Chas. Lot. It is about twenty feet west of the meadow and just west of a foot-path leading to the Fertilizer factory. A small house at the end of a cable crossing stands on the salt meadow E. by S. of the monument. The monument is 250 feet north of the north side of the road to Carteret Station.

MONUMENT 25—For range through L and No. 1 to Mon't 33—dp, 550.66; dm, 0.00. This monument is on the property of the Linoleum Company, at Linoleumville, Staten Island. It is near edge of meadow about 200 yards north of public road passing through Linoleumville and running down to pier.

MONUMENT 26—For range through K to Melvin chimney—dp, 968.6; dm, 598.85. Monument is in N. J., on the property of Geo. F. Gantz, 55 yards at right angles north of branch railroad running from Carteret to Clark's factory, on upland. There is a plug on the meadow 200 yards north from Clark's Fertilizer fac-

tory. It is of cedar wood, squared at top, and measuring about 4 inches, and is 62 yards from Kill and 3 yards south of small gut.

MONUMENTS 27, 28 and 29.—27 and 29 range through 1 and 2. 27—dp, 1354.31; dm, 1039.78. 29—dp, 1611.7; dm, 1220.9. 28 ranges through L to Mon't No. 30. 28—dp, 1352.6; dm, 1090.5. These monuments are all on S. I., just south of Chelsea. The most northerly one is upon meadow belonging to a Mr. Meyer. It is 200' N. E. of a creek and 50' east of Kill. The other two monuments are on the upland upon property in charge Marshall Cannon. The more westerly one is 150 feet north of public road, and the other is 250 feet north of road. Monument 29 is 6 metres east of U. S. coast survey signal "Meyers."

MONUMENTS 30 and 31.—For range through No. 2 and L. 30—dp, 434.1; dm, 886.95. 31—dp, 498.24; dm, 762.02. These monuments are both on Tremley Neck in N. J., just up on the upland. The distance between the monuments is 114.6 metres. The monument further east is 144 yards from S. E. corner of house and the one further west is 36 yards from same. They are on the property of John B. Wynants.

MONUMENT 32.—For range through No. 3 to Mon't 34 in S. I.—dp, 775.8; dm, 1115.5. This monument is on Tremley Neck, on the property of John B. Wynants. It is on the upland, 5' south of meadow line. The meadow line makes a sharp turn to the west about 70' feet N. W. of the monument. Southwest of the monument 60' is a large oak tree.

MONUMENT 33.—For range through 4 to Mon't 39, and through 3 to Standard Chemical chimney—dp, 1345.78; dm, 0.0. This monument is on Prall's Island, near the north end, 80' west of the inside channel.

MONUMENT 34.—For range through 3 to Mon't 32, and through 4 to Standard Chemical chimney—dp, 262.2; dm, 1266.62. This monument is on the Staten Island side, on meadow just north of Prall's Island, and distant from Kill about 300 metres. It is just about at head of a gut which flows westerly into Kill.

MONUMENTS 36 and 35—35 ranges through P to Mon't 38 and through R to Staten Chemical chimney—dp, 1805.9; dm, 303.9. 36 ranges through S to the more easterly Bowker fertilizer factory chimney—dp, 805.9; dm, 338.9. These monuments are on the upland on the J. S. Tudder estate north of Bloomfield. The monument the more westerly is 25 yards east of where the upland makes a sharp turn to the south, and the other monument is 35 metres directly east of the first one.

MONUMENT 37—dp, 844.1; dm, 366.9. This monument is on Buckwheat Island, near the north end, and marks Boundary Station 0.

MONUMENTS 38 and 39—38 ranges through P to Mon't No. 35; 39 ranges through 4 to Mon't No. 33—(38) dp, 1809.75; dm, 2.51; (39) dp, 271.24; dm, 1248.65. These monuments are on the New Jersey shore, on upland, some distance back from Kill. The property belongs to D. Bonnet, real estate agent. Mon't No. 39 is just at edge of meadow and upland. It is 700 yards southerly along an avenue from B. & O. R. R. crossing and 40 yards east of the same avenue. The other monument is 380 metres southerly from No. 39. It is 40' from edge of meadow on gentle slope of upland.

MONUMENT 40—For range through R to Staten Chemical chimney—dp, 132.07; dm, 187.76. This monument is in New Jersey, on the property of Fire Proof Building Co., just below the B. & O. bridge. It is on upland, 30 yards north of creek.

MONUMENT 41—For range through S to Staten Chemical chimney—dp, 355.35; dm, 929.68. This monument is on Staten Island, on meadow. It is 19 yards at right angles from large ditch running parallel with B. & O. trestle on south side. The range line from monument through S to Staten Chemical chimney, produced backwards, intersects the trestle in the 29th bent, between the two uprights, counting from the most easterly foundation pier.

MONUMENT 42—For range through B' to Glue factory chimney, H' to Oil Cloth Co. chimney—dp, 774.86 ; dm, 582.08. This monument is on the property of Wm. Dooley, on Staten Island. It is in bend of gut flowing into the ditch north of and parallel to B. & O. trestle, and distant from the same 300 yards.

MONUMENTS 43, 44 and 45—43 ranges through C' to the more easterly of the two taller chimneys at Singer's factory—dp, 1248.8 ; dm, 28.91. 44 ranges through B' to Presbyterian Church spire—dp, 1275.19 ; dm, 1394.21. 45 ranges through C' to Glue factory chimney—dp, 1140.86 ; dm, 1224.08. These monuments are all on Staten Island, on the meadow of Wm. Dooley. They are all in the immediate vicinity of Dooley's Marine Railway.

MONUMENT 46—For range through D' to Bergen Point Light—dp, 814.53 ; dm, 388.40. This monument is at Port Richmond, Staten Island, in the rear of William Ross' lot near Kill.

MONUMENT 47—For range through E to Bergen Point spire—dp, 342.37 ; dm, 303.16. This monument is at Port Richmond, S. I., in the rear of Abr. Gibson's door-yard, 40' from Kill, 3' from the fence between Gibson and Stephen Squires, and 75 feet from line fence between Gibson and Ebhard Faber.

MONUMENTS 48 and 49—48 ranges through D' and produced in the opposite direction it passes through the centre of Agricultural works chimney—dp, 1292.65 ; dm, 795.85. 49 ranges through E' and F' to Mon't No. 51. These monuments are on the property of Carr and Hobson's, Bergen Point, N. J. No. 48 is near edge of meadow, 20 feet from Kill, and 50 feet westerly from track of Little Hand R. R., running from works down on pier. No. 49 is 40 feet west of storage shed in little clump of trees, and 200 feet east of main building.

MONUMENT 50—For range through F to N.E. prong of a church in Port Richmond—dp, 1317.87 ; dm, 920.26. This monument is on the estate of Rufus Story, at Bergen Point, N. J., on the south side of 1st street in grove fronting on Kill. It is 3' inside of fence.

MONUMENT 51.—For range through E' and F' to Mon't 49—dp, 832.4; dm, 398.95. This monument is at West New Brighton, S. I., on the property of the S. I. *Star*, a local newspaper. It is in the rear of the lot, 4 feet from the stoop and 40 feet from Rapid Transit R. R. track.

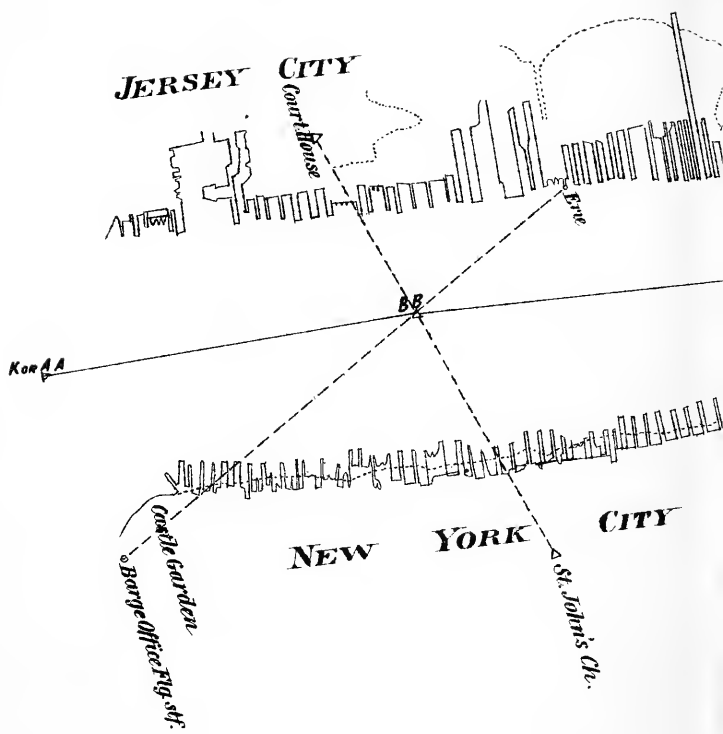
MONUMENT 52.—The range through G' and H' to Mon't 55—dp, 1624.31; dm, 293.48. This monument is at Bergen Pt., N. J., on the property of Mr. Gunther, deceased. It is about 62 metres east of a street running from a new dock belonging to the city and about 60 feet from edge of meadow on a gentle east slope.

MONUMENT 53.—For range through G to Oil Company's chimney—dp, 1318.59; dm, 898.5.—This monument is on Staten Island, on the property of Richard Delafield, just west of Livingstone Station on the Rapid Transit Road. It is 9.8 metres along the range produced back to the Borax factory, and 4.5 metres along building westerly to side of main entrance to the same.

MONUMENT 54.—For range through cross cut upon cap stone of wall, 4' and I'; dp, 1206.33; dm, 77.09; mark on Mon't—dp, 1249.92; dm, 14.83.—This monument is on the property of Sailors' Snug Harbor. It is 225 feet from Richmond Terrace and 76 metres along range line from cross cut in cap stone of fence running parallel with and separating the property from Tyson street. The cross cut is the other range for H' and I.

MONUMENT 55.—For range through G' and H' to Mon't No. 52—dp, 1624.31; dm, 330.49. This monument is just inside of curbing for sidewalk, one inch below surface. It is on the north side of Richmond Terrace, east of New Brighton Rapid Transit Station, and about opposite the Windsor Hotel. It is also about opposite east end of platform of station.

MONUMENT 56.—For range through I to Crude Oil chimney—dp, 1571.89; dm, 1188.71. This monument is at St. George, Staten Island, on the property of Rapid Transit Co. at west end of yard. It is just at foot of terrace, 125 feet from Kill and 200 feet west of boathouse, and 15 feet from switch.



MAP
OF THE BOUNDARY LINE BETWEEN
THE STATES OF NEW YORK AND NEW JERSEY

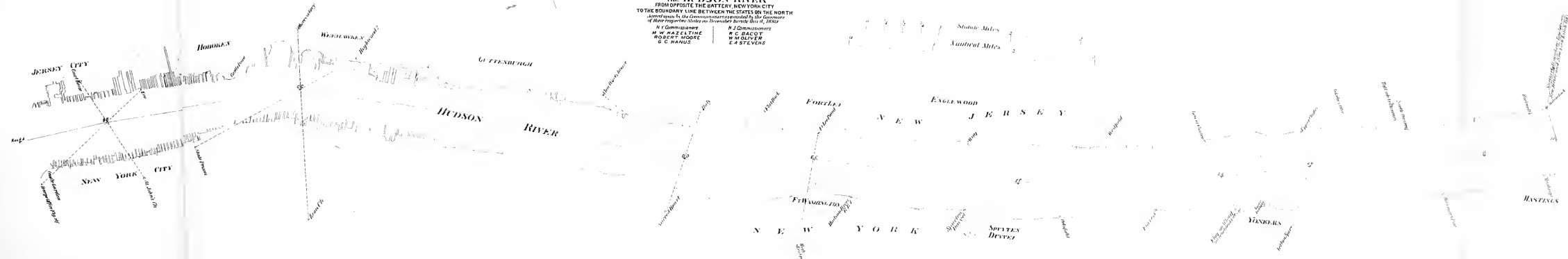
in Lands under Water in
THE HUDSON RIVER
FROM OPPOSITE THE BATTERY, NEW YORK CITY
TO THE BOUNDARY LINE BETWEEN THE STATES ON THE NORTH
as agreed upon by the Commissioners appointed by the Governors
of their respective States on December twenty third 1884

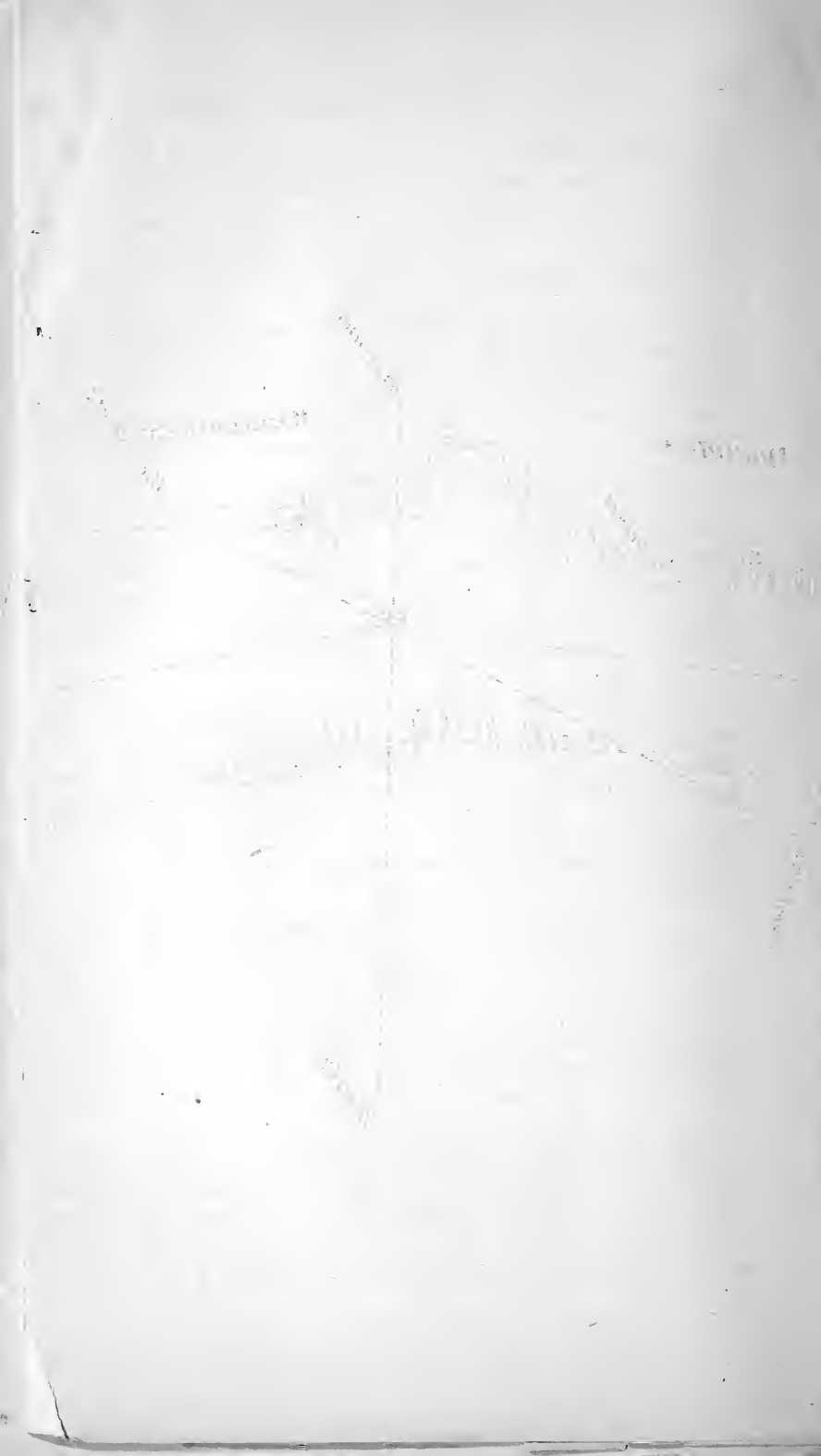
N. Y. Commissioners
M. W. HAZELTINE
ROBERT MOORE
G. C. HANUS

N. J. Commissioners
R. C. BACOT
W. M. OLIVER
E. A. STEVENS

Statute Miles

Nautical Miles





Staten Island

1841

1

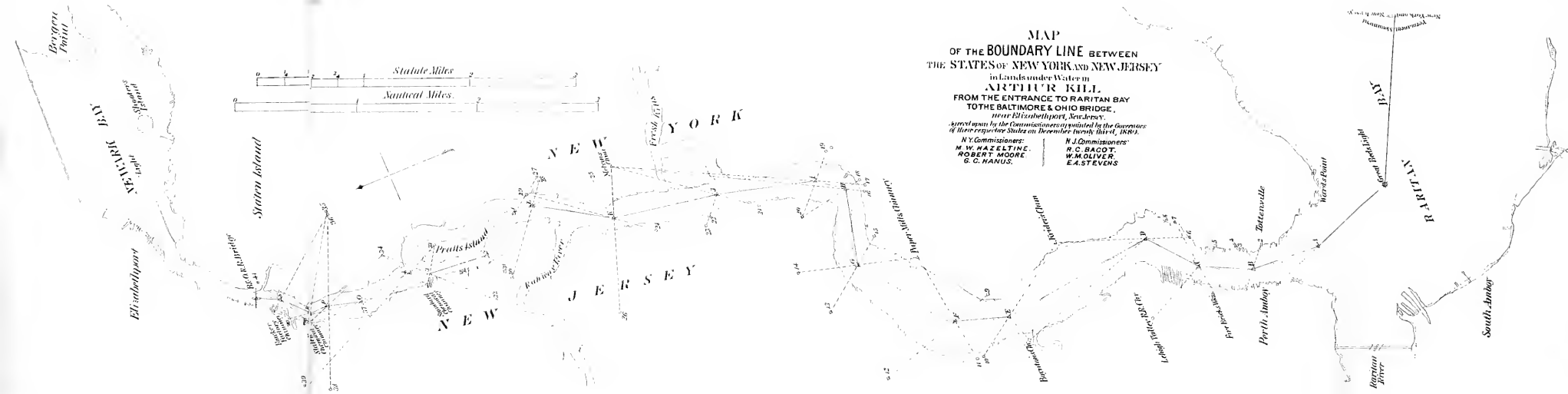
MAP
OF THE BOUNDARY LINE BETWEEN
THE STATES OF NEW YORK AND NEW JERSEY

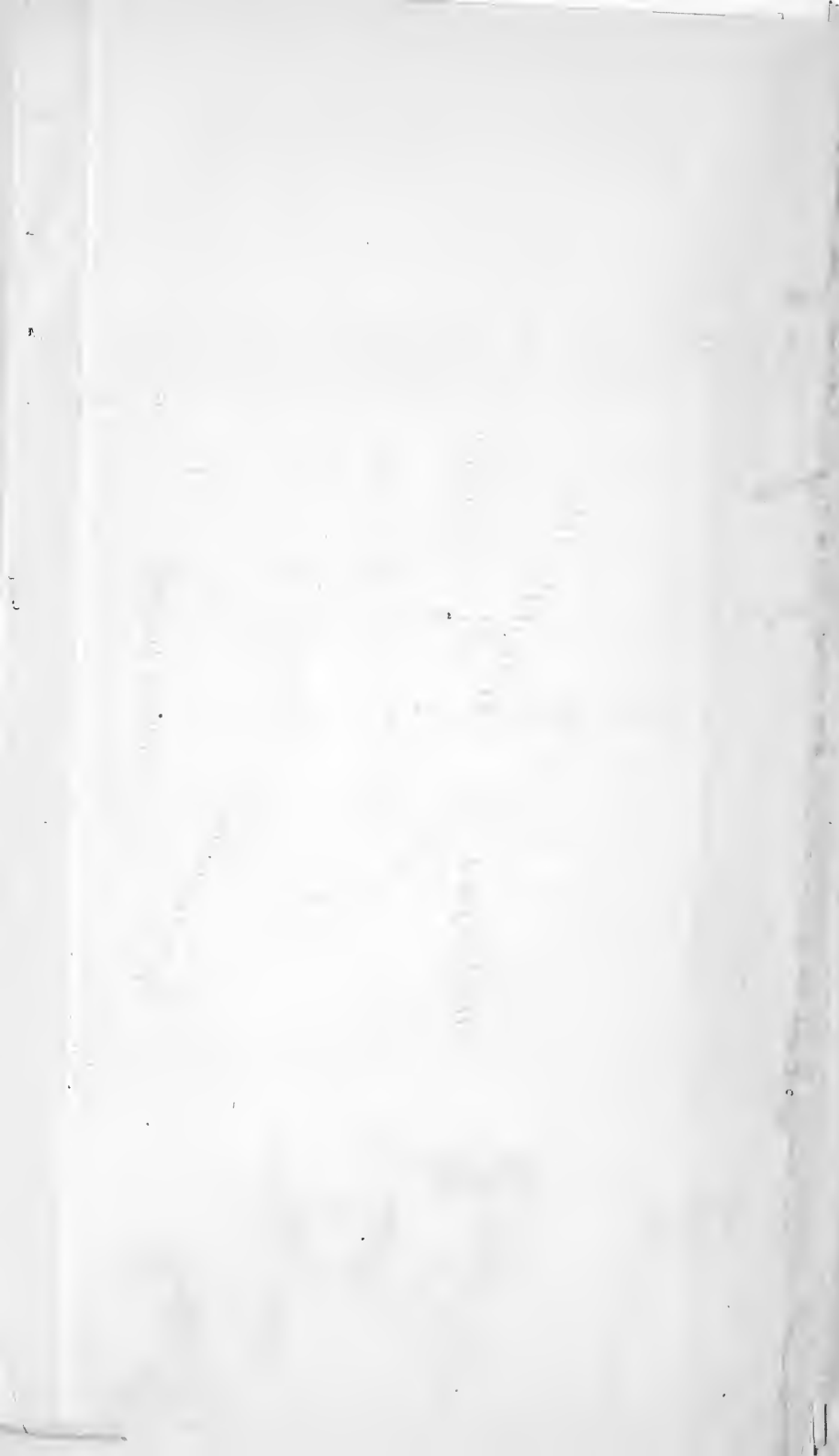
in Lands under Water in
ARTHUR KILL,
FROM THE ENTRANCE TO RARITAN BAY
TO THE BALTIMORE & OHIO BRIDGE,
near Elizabethport, New Jersey.

Agreed upon by the Commissioners appointed by the Governors
of their respective States on December twenty third, 1884.

N. Y. Commissioners:
M. W. HAZELTINE,
ROBERT MOORE,
G. C. HANUS.

N. J. Commissioners:
R. C. BACOT,
W. M. OLIVER,
E. A. STEVENS.





FINAL REPORT

OF THE

New Jersey Boundary Commission

New Jersey Commission

APPOINTED TO LOCATE AND MARK OUT

The True Boundary Line Between the States of New Jersey
and New York, in Lands Under Water in

RARITAN BAY,

UNDER THE JOINT RESOLUTION OF THE LEGISLATURE OF THE STATE
OF NEW JERSEY, APPROVED APRIL 20, 1886.

WITH ACCOMPANYING DOCUMENTS, JANUARY 18, 1890.

(NOTE.—The first report of the Commission upon the Boundary Line in Raritan Bay was made to the Legislature of New Jersey December 20, 1887, and was published by the Legislature of 1887-88, accompanied by a map showing the location of the Boundary Line agreed upon.)

JERSEY CITY, N. J.:
THE JERSEY CITY PRINTING CO., 37 MONTGOMERY STREET.
1890.



REPORT.

To the Legislature of the State of New Jersey:

The Commissioners appointed by the Governor under authority of the Joint Resolution of the State of New Jersey, approved April 20, 1886, "to locate and mark out the true boundary line in lands under water between the States of New Jersey and New York in Raritan Bay," respectfully submit a final report of their proceedings.

The agreement as to the boundary line was reached in 1887, the line temporarily marked, and the agreement, accompanied with a map showing such line, filed in the office of the Secretary of State, at Trenton, October 12, 1887.

But the work of marking the boundary by a permanent monument was of necessity delayed by the insufficient appropriation made for the purpose by the Legislature of the State of New York.

The appropriation made for the permanent monument by that State was \$2,500, while the lowest bid received, at that time, for the construction of such a monument was \$10,700, half of which must be paid by New York.

New Jersey, having provided in the Joint Resolution a fund available for such purposes, was ready at any time to pay her share of the expense.

As this monument was of the greatest possible importance, and would mark the turning point in the line, the Commissioners felt that it should be built in the strongest manner, and that no expense should be spared to make it durable and permanent.

They concluded, therefore, to postpone the work and wait until an additional appropriation could be secured from the Legislature of the State of New York, rather than to attempt to construct a monument with the funds available that would be unsatisfactory

and could not be relied upon to last for any considerable portion of time.

This permanent monument being absolutely essential to the completion of the work in Raritan Bay, the Commissioners did but little in that locality in 1888.

During the summer, however, of that year, they located and marked with a monument—since superseded by a larger structure—a point in continuation of the line from Romer Beacon to Morgan No. 2, U. S. Coast and Geodetic Survey, the western point of the extension of the Raritan Bay boundary line, which point had been lost and had to be re-located. The monument, being exactly on line with the Romer and the permanent monument, is of great value as a range.

In 1889 the Legislature of the State of New York made the necessary additional appropriation for the permanent monument, and in the spring of that year plans were prepared and bids were advertised for. Ross and Sanford, the well-known dock builders of Jersey City, being the lowest bidders, were awarded the contract, and the work was begun.

Their bid was \$10,000. Abel Martin, of Tottenville, S. I., was appointed inspector. In December, 1889, the monument was completed. A full description of it is given in the appendix. The contractors did their work most satisfactorily and are entitled to great praise. The monument marking the point on the New Jersey shore on a continuation of the line from the Romer beacon through the permanent monument, was replaced during the summer by a larger and more permanent structure. By the aid of the permanent monument and this range structure, together with the Romer beacon, it is possible to easily locate the boundary line in any portion of the bay. With the completion of this work of marking the line already agreed upon, the labors of the Commission were ended. The decision arrived at was an agreeable one, and both sides were fully satisfied. The work of marking was done in the most thorough manner possible, and was equally satisfactory to the Commission.

In conclusion, the Commissioners desire to congratulate the people of both States that this dispute, one of long standing, has at last been amicably settled. They feel that while their work has

been arduous and responsible, it still has been agreeable and pleasant when its result is considered.

They desire to express their sincere appreciation of the fairness and courtesy of the New York Commissioners, and are pleased to state that every determination of the Commission was reached unanimously.

In November, when the work of the Commission was near completion, Dr. George H. Cook, who had been associated with the Commission since its inception, died. In this State, where he was so well known, it is unnecessary to say anything as to the merit and worth of Dr. Cook, but it was fortunate for the Commission that his death occurred after rather than before the completion of its work. His knowledge of the history of New Jersey, his experience as president of the State Survey, and his connection with former Commissions, had especially fitted him for this work. The State sustained a severe loss in his death.

R. C. BACOT,
Chairman.

TRENTON, January 18, 1890.

AN Agreement, made the twelfth day of October, in the year 1887, between Mayo W. Hazeltine, Robert Moore and Lieut. G. C. Hanus, U. S. N., Commissioners on the part of the State of New York, and George H. Cook, Robert C. Bacot and A. B. Stoney, Commissioners on the part of the State of New Jersey.

WHEREAS, By Chapter 69 of the Laws of the State of New York for the year 1887, the Governor was authorized to appoint three Commissioners on the part of the State of New York, with full power to meet with the Commissioners duly authorized on the part of the State of New Jersey, and with them locate and mark out by proper monuments and buoys the true boundary line between the two States in lands under water in Raritan Bay; and

WHEREAS, The said Mayo W. Hazeltine, Robert Moore and Lieut. G. C. Hanus, U. S. N., were duly appointed Commissioners on the part of the State of New York for the purposes mentioned in the said Act; and

WHEREAS, By an Act of Legislature of the State of New Jersey, passed April 20, 1886, entitled a "Joint Resolution authorizing the appointment of a Commission to locate and mark out the boundary line between the State of New Jersey and the State of New York in Raritan Bay," the Governor of the State of New Jersey was authorized to appoint three Commissioners, with power on the part of the State to meet any authorities duly authorized on the part of the State of New York, and with them locate by proper buoys the boundary line between the two States of lands under water in Raritan Bay; and

WHEREAS, The said George H. Cook, Robert C. Bacot, and A. B. Stoney were duly appointed Commissioners for the purposes of said Act, and

WHEREAS, The said Commissioners, acting for and on behalf of their respective States, have entered upon the performance of the duties imposed upon them by said Act, and have in pursuance of the authority to them severally given as aforesaid, agreed and hereby do agree upon a boundary line between the two States in lands under water in Raritan Bay, and locate the same as follows :

First.—From the "Great Beds Lighthouse" in Raritan Bay North twenty (20) degrees, sixteen (16) minutes West, true, to a point in the middle of the waters of Arthur Kill or Staten Island Sound, equi-distant between the south-westerly corner of the dwelling house of David C. Butler, at Wards Point, on Staten Island, in the State of New York, and the south-easterly corner of the brick building on the lands of Cortlandt L. Parker, at the intersection of the westerly line of Water street with the northerly line of Lewis street, in Perth Amboy, in the State of New Jersey.

Second.—From "Great Beds Lighthouse" South sixty-four degrees and twenty-one minutes East, true (S. 64° 21' E.) in line with the centre of Waackaack or Wilson's Beacon, in Monmouth County, New Jersey, to a point at the intersection of said line with a line connecting "Morgan No. 2" triangulation point U. S. Coast and Geodetic Survey in Middlesex County, New Jersey, with the

Granite and Iron Beacon marked on the accompanying map as "Romer Stone Beacon," situated on the "Dry Romer Shoal"; and thence on a line bearing North seventy-seven degrees and nine minutes East, true, (N 77° 9' E.) connecting "Morgan No. 2" triangulation point U. S. Coast and Geodetic Survey in Middlesex County, New Jersey, with said "Romer Stone Beacon" (the line passing through said Beacon and continuing in the same direction) to a point at its intersection with a line drawn between the "Hook Beacon" on Sandy Hook, New Jersey, and the triangulation point of the U. S. Geodetic Survey known as the Oriental Hotel on Coney Island, New York; then southeasterly at right angles with the last mentioned line to the main sea.

Third.—The monumental marks by which said Boundary Line shall be hereafter known and recognized are hereby declared to be as follows :

1st. The "Great Beds Lighthouse."

2d. A permanent monument marked "State Boundary Line, New York and New Jersey," and to be placed at the intersection of the line drawn from the "Great Beds Lighthouse" to "Waackaack or Wilson's Beacon," Monmouth County, New Jersey, and the line drawn from "Morgan No. 2" triangulation point U. S. Coast and Geodetic Survey, in Middlesex County, New Jersey, to the "Romer Stone Beacon."

3d. Eight buoys or spindles to be marked like the permanent monument above mentioned, and placed at suitable intervening points along the line from the said permanent monument to the "Romer Stone Beacon."

4th. The "Romer Stone Beacon."

Fourth.—The maps accompanying and filed with this Agreement, showing the location of the above described Boundary Line between the State of New York and the State of New Jersey in Raritan Bay to the main sea, and of the monumental marks by

which it is marked and to be marked, duly authenticated and attested by the signatures of the said Commissioners, and placed on file in the offices of the Secretaries of State of the respective States, shall constitute the permanent and authentic records of said Boundary Line, and are hereby adopted by the parties hereto, and made a part of this Agreement.

In Witness Whereof, the said Commissioners have hereto set their hands and seals in duplicate, this twelfth day of October, in the year of our Lord 1887.

M. W. HAZELTINE.	[L. s.]	GEO. H. COOK.	[L. s.]
ROBERT MOORE.	[L. s.]	ROBT. C. BACOT.	[L. s.]
G. C. HANUS, Lieut. U.S. N.	[L. s.]	A. B. STONEY.	[L. s.]

Certified to.

EDWARD P. DOYLE,
Secretary of Joint Commission.

STATE OF NEW JERSEY, }
DEPARTMENT OF STATE. }

I, Henry C. Kelsey, Secretary of State of the State of New Jersey, do hereby certify that Robert C. Bacot, Esq., did, on the first day of November, A. D. eighteen hundred and eighty-seven, file in my office the following Map and Agreement, viz:

(1) Map of the Boundary Line between the States of New York and New Jersey in lands under water in Raritan Bay, agreed upon by the Commissioners appointed by the Governors of their respective States. Dated October 12, 1887.

(2) Agreement between the Commissioners of the States of New York and New Jersey, to locate the boundary line between said States in lands under water in Raritan Bay.

Dated October 12, 1887.

In Testimony Whereof, I have hereunto set my hand and affixed my official seal at Trenton, this first day of November, A. D. 1887.

[SEAL]

HENRY C. KELSEY,
Secretary of State.

THE UNITED STATES OF AMERICA
COMMISSION

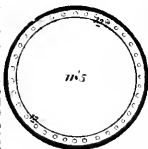
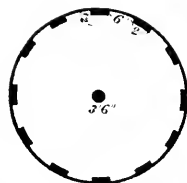


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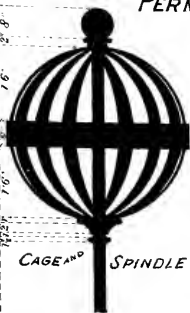
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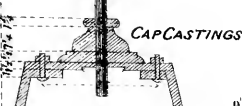
PERMANENT MONUMENT IN RARITAN BAY ON STATE BOUNDARY LINE
BETWEEN NEW YORK AND NEW JERSEY.



CROSS SECTIONS OF CASTINGS



CAGE AND SPINDLE



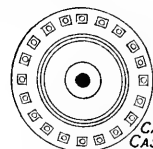
CAP CASTINGS

MEAN HIGH

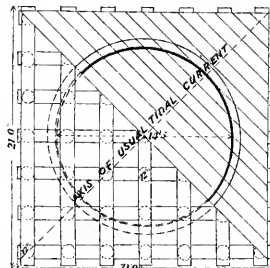
LOW

0' 5' 10' 15'
GENERAL SCALE.

0' 1' 2' 3' 4'
SCALE OF DETAILS.

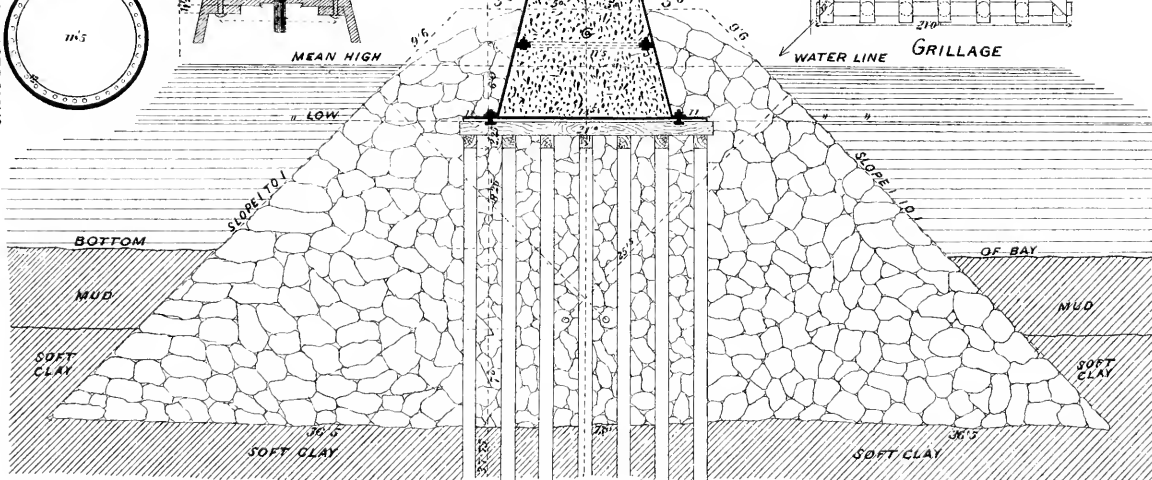


CAP CASTING.



WATER LINE

GRILLAGE



BOTTOM

MUD

SOFT CLAY

SLOPE 10:1

SOFT CLAY

OF BAY

MUD

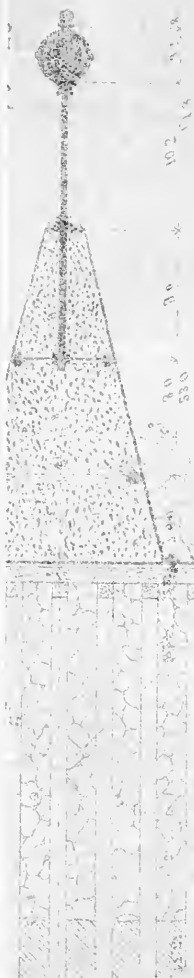
SOFT CLAY

SLOPE 10:1

SOFT CLAY

PERMANENT MONUMENT IN RAS

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Description of the Permanent Monument in Raritan Bay.

Marking the corner in the Boundary Line between the States of New Jersey and New York, $1\frac{3}{4}$ miles South $60^{\circ} 21'$ East (true) from the Great Beds Lighthouse.

The height of the monument is 37 feet from mean low water mark to the top of the spindle.

Foundations.—Consist of a grillage of 49 piles 14 inches in diameter at the butt, previously treated with Fernoline oil, set 2 feet 8 inches apart from centres in the form of a square of 21 feet, and driven to a depth of 75 feet below mean low water mark to a solid substratum.

Capping and Planking.—The piles are capped with $12'' \times 12''$ squared Georgia Pine Timber, 21 feet long, securely bolted to each pile with one inch lag screws two feet long, on which planking of Georgia Pine, $3'' \times 12'' \times 20''$ feet is spiked down obliquely to the square.

The piles are cut off to a depth of about two feet below mean low water, leaving the top of the planking when completed about 2 inches below mean low water.

Rip Rap.—After the piles were driven, stone of a durable character was deposited between and around the piles, weighing about from 250 to 1,000 lbs., with stone of 2,000 lbs. on the sides above and below low water.

The structure conforms closely to the figure of a frustum of a cone, symmetrically arranged about the grillage, having side slopes of one to one and rising to a height of four above mean high water when complete, rounded on the top as shown on the sketch herewith.

When the settlement of the Rip Rap was complete, the superstructure on the monument proper was constructed as follows :

Superstructure.—This consists of a cast-iron shell $1\frac{1}{2}$ inches thick, of the form of a frustum of a cone 3 feet in diameter at the top, $1\frac{1}{2}$ feet at the bottom, and 23 feet high, made in three sections of 6, 8 and 9 feet high in order, from the bottom.

These sections are bolted together through internal flanges 6 inches wide, with 1 inch bolts, and are capped with a casting made as per drawing, bolted to the top through flanges.

The bottom casting is bolted to the planking through an external flange with one inch wrought iron bolts equally spaced.

The whole structure is surmounted with an iron spindle 3 inches in diameter and 23 feet high, placed in the centre of the cap casting and penetrating the interior of the bottom of the upper section of the castings.

Its lower end is held in place by plate bars laid crosswise and bolted to the inner flanges of the castings. The exposed portion of the spindle rises to a height of 14 feet above the cap casting, and around its top a wrought iron spherical cage is securely fastened, 3 feet 6 inches in diameter, heavily riveted together, resting on a collar secured to the spindle.

A hollow iron ball 4 inches in diameter crowns the top of the spindle.

The centre of the spindle coincides with the geometrical point which it is intended to permanently mark.

Concrete.—The entire shell of the castings is filled with Beton concrete of a superior quality made of equal parts of natural and Portland cement mixed with the usual proportions of sand and broken stone, compactly rammed in layers, thereby making a solid monolith clad with an iron shell.

Painting.—All of the iron work was painted with one coat of red lead, and two coats of Atlantic white lead, and the words "State Boundary Line, New York and New Jersey," painted thereon in large block letters.

The structure was built from a plan suggested by the Light House Department, U. S., varied to meet the conditions of a locality exposed during the winter season to the large accumulation of floating ice in Raritan Bay, requiring foundations of a depth and weight necessary to insure its stability.

The contractors for the entire work were Messrs. Ross & Sanford, of Jersey City, N. J.

NEW YORK, January 18th, 1889.

Gentlemen of the Joint Boundary Commission, New York and New Jersey, No. 311 Potter Building:

With reference to the effort to recover Morgan 2 triangulation point, the determination of Morgan trial flag, and the determination and placing of a boundary monument, all of which is fully discussed in the report of Messrs. Vermeule and Bien, I have the honor to state that the work has been carefully checked by me and all the data furnished is correct.

The fact that Morgan 2 mentioned in the boundary agreement of last year cannot be recovered does not matter, as the new point on the line passing through Romer and the proposed beacon in the bay has been as carefully determined and located as was Morgan 2 originally. It may be well for the Commission to consider the practical difficulty of placing a mark which can be seen from the bay. The boundary monument which has been planted, has been put back some distance in the woods, as was necessary to preserve it from destruction on account of the proximity of clay pits. A good practical way, and one which would show oystermen and others in the bay the line after the proposed beacon shall have been built, would be to place a cheap wooden structure, painted white, on the line at a point on a bluff, the point being already marked. This would probably be destroyed in time on account of the digging for clay, but another structure could be built further back. To erect a mark which could be seen in the bay over the boundary monument would be very expensive.

Very respectfully,

G. C. HANUS,
Lieut. U. S. Navy.

NEW YORK, January 12, 1889.

Joint Boundary Commission, New York and New Jersey.

GENTLEMEN:—In conformity to instructions received in July, 1888, we proceeded to redetermine the position of the U. S. Coast and Geodetic Survey station Morgan No. 2, which had been agreed upon by your Commission as a range point through which the line

from Romer Beacon, up Raritan Bay, should pass. A careful examination was made on the ground to see if any marks existed by which the point could be identified on the spot. The site had been much disturbed by clay workings, and after correspondence with the Superintendent of the U. S. Coast and Geodetic Survey it was definitely ascertained that the only data which we had from which to recover the point was its recorded position in latitude and longitude. To increase the difficulty, neither Conasconk Point nor Princess Bay, the two stations from which it was originally located, could be recovered.

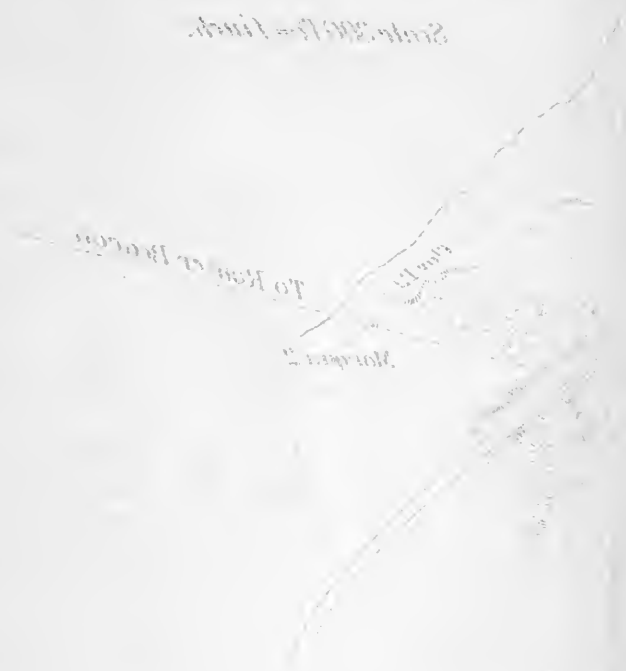
An attempt was then made to find stations Bloomfield and Cole, which were originally connected secondary stations, and which, with Morgan No. 2, would have made a good triangle. But these points could not be well enough located to answer our purpose, and we were compelled, in order to save undue expense, to use stations Beacon Hill and Princess Bay Lighthouse. Unfortunately, the former station was a Primary and the latter a Secondary station, and they had never been directly connected in the original triangulation.

Measurements of the angles at Beacon Hill and Princess Bay Lighthouse were carefully made, and the position of a signal set up near Morgan No. 2 was computed. The distance of Morgan No. 2 east and north of this point was then calculated and laid off on the ground. After consultation with Captain Hanus it was decided to thoroughly check this work by an independent triangulation from Princess Bay Lighthouse and Waacake Beacon. New data having been obtained from the office of the U. S. Coast and Geodetic Survey, an entire new computation was made after a large number of additional angles had been measured. This computation rested on the measurement of eighteen angles with from six to twenty-four repetitions each, or 148 measurements in all. The results obtained from the two independent bases, Princess Bay Lighthouse, Beacon Hill and Princess Bay Lighthouse, Waacake Beacon agreed within one foot as to the position of Morgan No. 2.

This result was highly satisfactory and was accordant with observations made by Captain Hanus by a different method. It simply remained to lay off the computed easting and northing from the trial signal to find the location of Morgan No. 2. This was

SKETCH SHOWING POSITION OF MORGAN RANGE MONUMENT

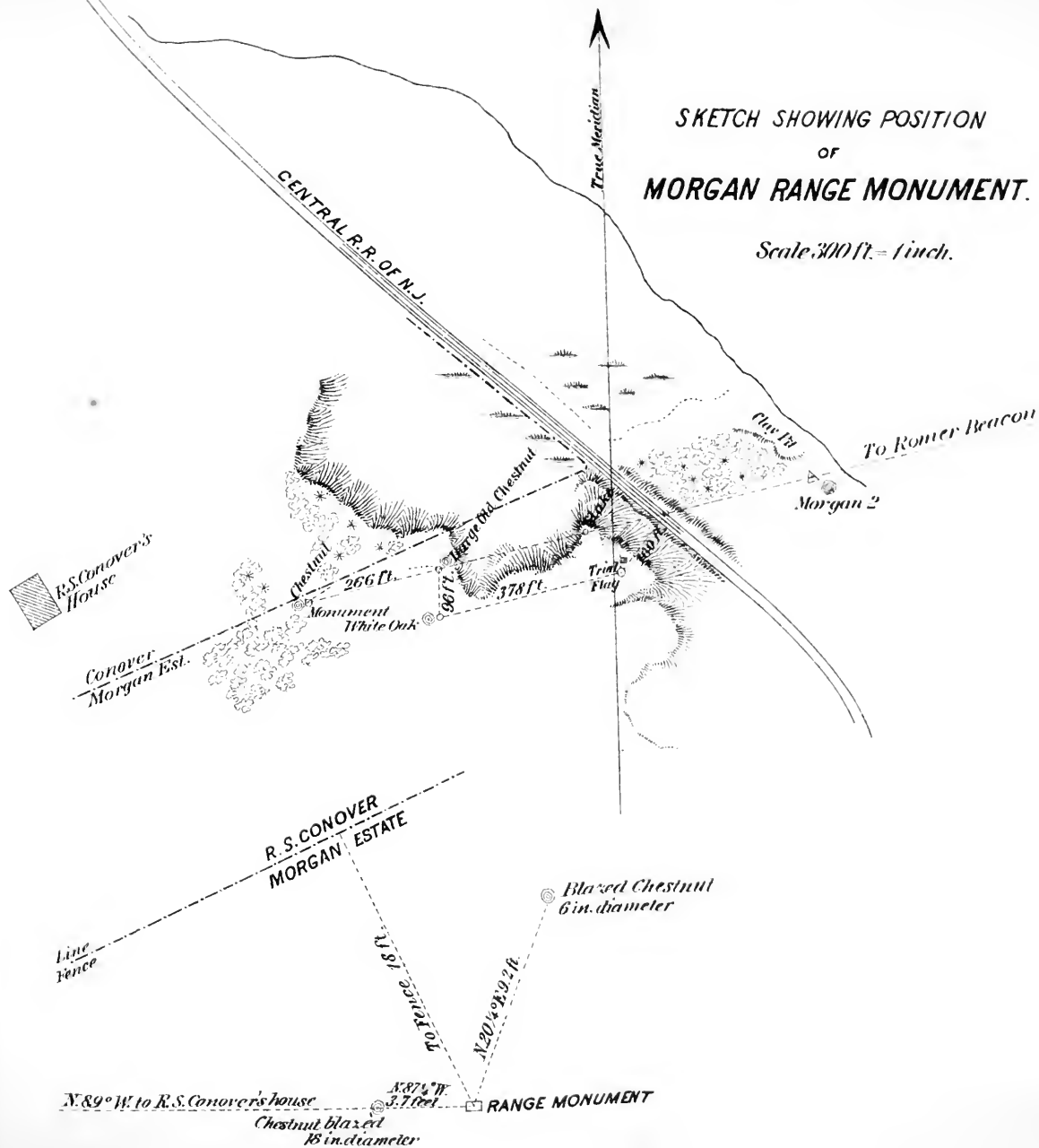
Scale 1:50,000



W. H. HARRIS
1908

SKETCH SHOWING POSITION
OF
MORGAN RANGE MONUMENT.

Scale 300 ft. = 1 inch.



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done, and the position found agreed with that indicated roughly on a sketch furnished by the U. S. Coast and Geodetic Survey.

The line Romer Beacon Morgan No. 2 was then ranged back, and a point 1045.7 feet from Morgan No. 2 and near the line between Richard S. Conover and the Morgan estate, was selected on which to set a range monument where it would be safe from disturbance by clay workings which cover the bay shore. The location of this range monument in latitude and longitude was also computed. Besides locating and settling this range monument, the exact position of Great Beds Lighthouse, the direction and distance thence to the proposed boundary monument in the bay, the position of the site of this monument and the direction and distance thence to Romer Beacon, were ascertained and are here appended. We also append a description of the range monument with a map showing its exact location. No labor has been spared, either by Captain Hanus or ourselves, to make this location exact and final.

By comparison of data and results we have together been able to detect every one of the hidden causes for error incident to the peculiar nature of the problem and the many difficulties attending its solution.

DESCRIPTION OF MORGAN RANGE MONUMENT.

Above ground this monument is a rectangular pillar of marine granite, 8 by 12 inches in size, and 12 inches high. The north side is lettered thus :

Range Monument for N. Y. and N. J. Boundary.

The south side is lettered as follows :

N. 77° 21' 48" E.
1,046 feet to
Morgan No. 2 ;
12,454 feet to
Boundary Monument ;
72,762 feet to
Romer Beacon.

The whole length of the granite pillar is 3 feet. To set it a hole was dug 2 feet wide, $2\frac{1}{2}$ feet long, and 4 feet deep. A coarse beton, made with hydraulic cement, was then run in until the hole was half full. The monument was then set in and beton run in around it until the hole was full. Thus a solid mass is formed firmly planted in the ground and weighing considerably over a ton.

The stone is set with its greater dimension in the line Romer Beacon Morgan No. 2, and this line passes through its centre.

It is located eighteen feet south of the line fence between Richard S. Conover and the Morgan estate, and is almost exactly 100 yards west of where this fence comes down to the bluff, at the old clay workings. At the monument the following measurements were taken: No. 20 $1-4^{\circ}$ E. 9.2 feet to a blazed young chestnut 6 inches in diameter; N. $87\ 1-4^{\circ}$ W. 3.7 feet to a blazed chestnut 18 inches in diameter; N. 89° W. to Richard S. Conover's dwelling house. These bearings are magnetic, the declination west being now about 8 degrees. The line to Romer Beacon passes over the point of the bluff just northwest of the trial flag as shown in the sketch.

Morgan trial flag was lashed in the top of a white oak tree 18 inches in diameter, blazed. The station was plumbed down carefully from the flag, and a stout oak stake was driven to mark it. A tack in this stake is the centre of the station, and this tack is North $26^{\circ}\ 21'$ west from a tack in the blaze in the white oak, distant 2.6 feet.

On the following page is the map showing the vicinity of the range monument, and further on the latitudes, longitudes, azimuths, and distances of the various points and lines.

All bearings are from true meridian in this list.

Very respectfully,

VERMEULE & BIEN,
Civil Engineers.

ON CLARKE'S SPHEROID OF 1866.

STATION.	Latitude.			Seconds in metres.	Longitude.			Seconds in metres.
	Deg.	Min.	Sec.		Deg.	Min.	Sec.	
Princess Bay Lt. Ho.....	40	30	27.59	851.0	74	12	49.57	1167.1
Beacon Hill.....	40	22	26.55	818.9	74	12	49.57	988.7
Waacake Beacon... ..	40	26	38.48	1186.8	74	08	11.43	269.3
Romer Stone Beacon.....	40	30	46.85	1445.1	74	00	50.05	1178.3
Gt. Beds Light Ho.....	40	29	11.98	369.5	74	15	12.26	288.7
Morgan No. 2.....	40	28	10.83	334.0	74	15	56.04	1320.2
Boundary Monument....	40	28	08.57	265.2	74	16	11.61	273.5
Morgan Trial Flag.....	40	28	08.99	277.3	74	16	01.12	26.4

		Bearing, or Azimuth.		Distance— in metres. in feet.
	Deg.	Min.	Sec.	
Princess Bay Lt. to Beacon Hill...	S. 44	45	26.7 W.	14,888.8
Princess Bay Lt. to Waacake Beacon	S. 42	51	32.0 E.	9,636.7
Great Beds Lt. to Boundary Mon't.	S. 64	30	39.7 E.	2,616.1
Boundary Mon't to Romer Beacon.	N. 77	21	57.1 E.	18,381.7
Range Mon't to Boundary Mon't..	N. 77	21	47.8 E.	3,795.9

N. B.—The last two courses are not the same because of the convergence of meridians.

VERMEULE & BIEN,
Civil Engineers.

Expenses of Commissioners of the State of New Jersey appointed to locate and mark out the boundary line between the States of New Jersey and New York in Raritan Bay, under Joint Resolution of the Legislature approved April 20, 1886.

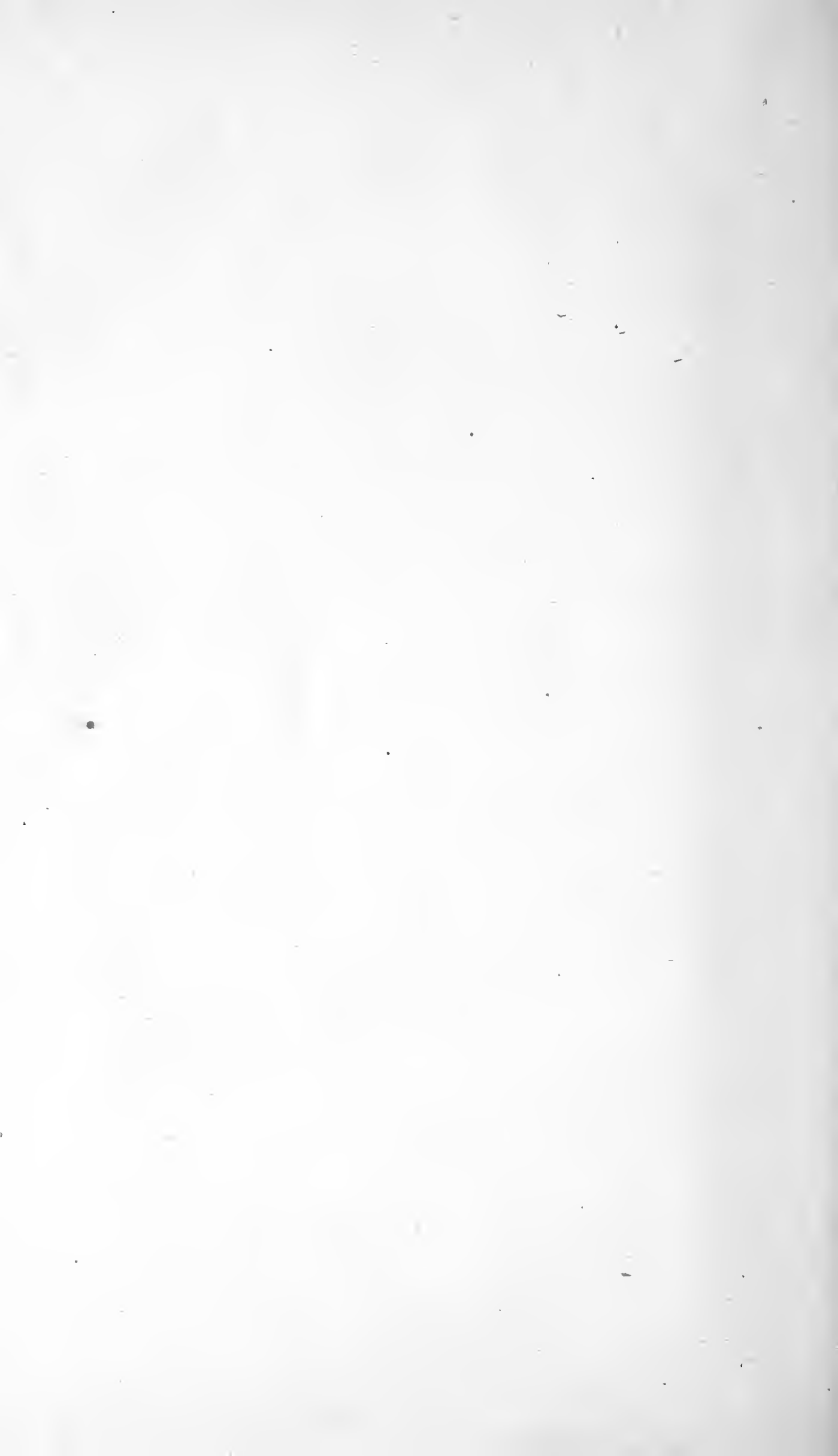
1887. Dec. 24.	For services of Hydrographic Engineer in locating boundary line in November and December.....	*\$30 25
"	For petty Cash paid by Secretary.....	2 11
1888. Sep. 11.	For typewriting of document.....	70
18.	For amount paid W. S. Bacot, Engineer, for plans and specifications for permanent monument....	*41 54
25.	For Bacot and Record, legal papers.....	*12 50
29.	For typewriting documents.....	4 25
"	For Capt. Mark Stevens, use of tugboat.....	*39 50
Oct. 22.	For Vermeule and Bier, engineering services.....	*77 86
Nov. 15.	For E. P. Doyle, Sec'y, disbursements, viz.: U. S. Coast and Geodetic Survey.....	*\$34 31
"	" " " " " "	*27 50—61 81
24.	For Jones & Co., chain furnished by U. S. Light-house department.....	*20 74
"	For Phoenix Iron Co., 4 buoys.....	*222 14
"	For salary of E. P. Doyle, as Secretary ($\frac{1}{2}$).....	*250 00

1889, Jan. 15.	James Langen, cutting and setting monument at Morgan No. 2.....	*17 75
17.	Vermeule & Bien, engineering services in locating permanent monument.....	*94 46
June 28.	Type writing documents.....	6 50
Aug. 6.	Hire of tug boat "E. C. Cary".....	*12 50
31.	Lieut. Hanus' travelling expenses.....	29 81
"	Abel Marten, inspector's services.....	*60 00
Sept. 20.	J. C. Payne, copy of plans Perm't Mon't.....	*7 50
Oct. 9.	Vermeule & Bien, engineering services.....	*26 21
19.	Abel Martin, inspector's services....	*105 00
Nov. 14.	Vermeule & Bien, engineering services.....	*37 19
30.	E. P. Doyle, salary as Secretary.....	*150 00
"	Abel Martin, inspector's services.....	*90 00
Dec. 18.	" " " "	*30 00
23.	" " " "	*30 00
"	Ross & Sanford, 1-2 of amount of contract for constructing Permanent Monument in Raritan Bay	*5,000 00
		<hr/>
		\$6,460 32
Expenses paid to Dec. 20, 1887, as previously reported.....		792 57
		<hr/>
		\$7,252 89

R. C. BACOT,

Chairman.

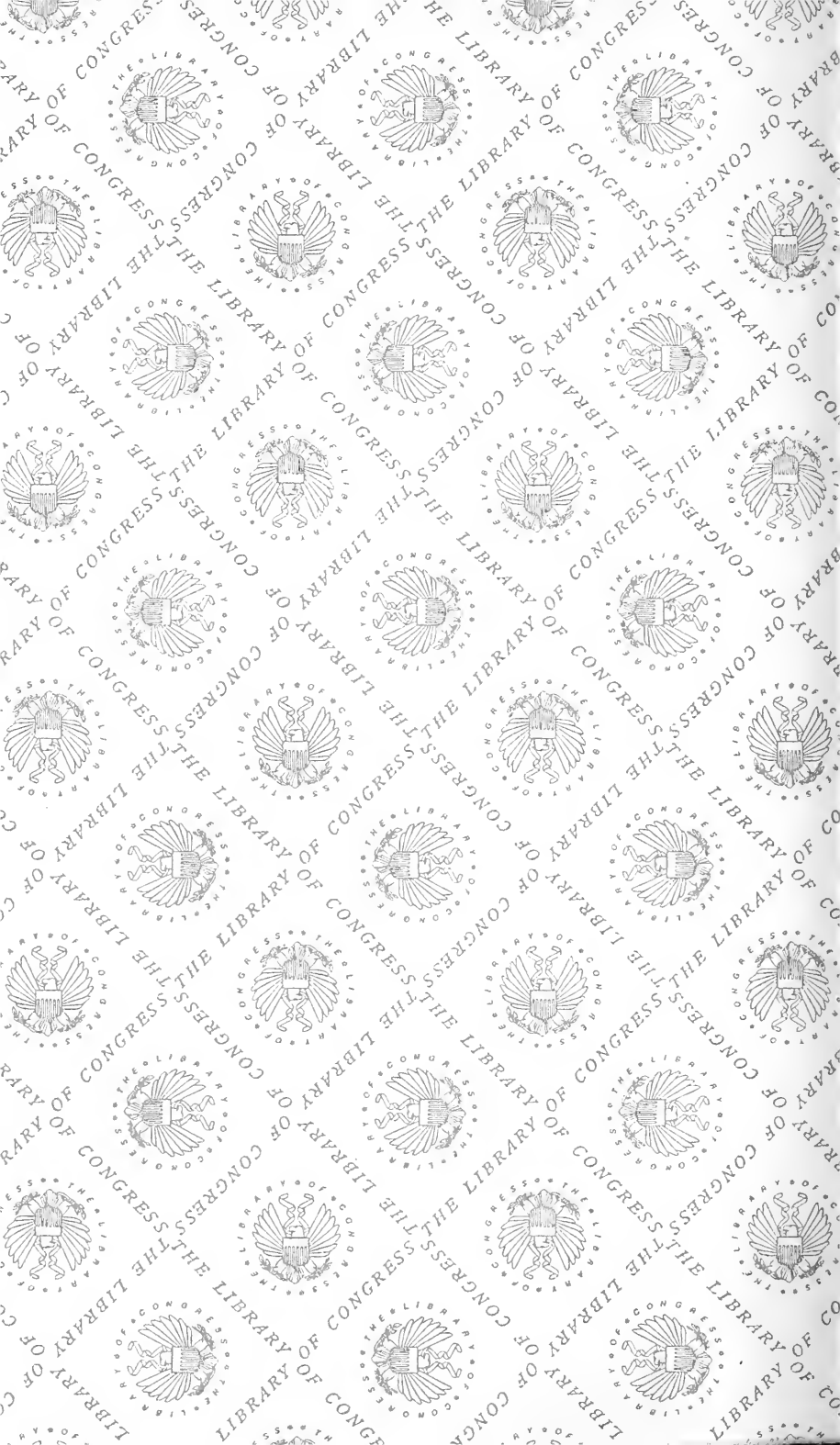
Amounts marked "*" paid equally by New Jersey and New York.

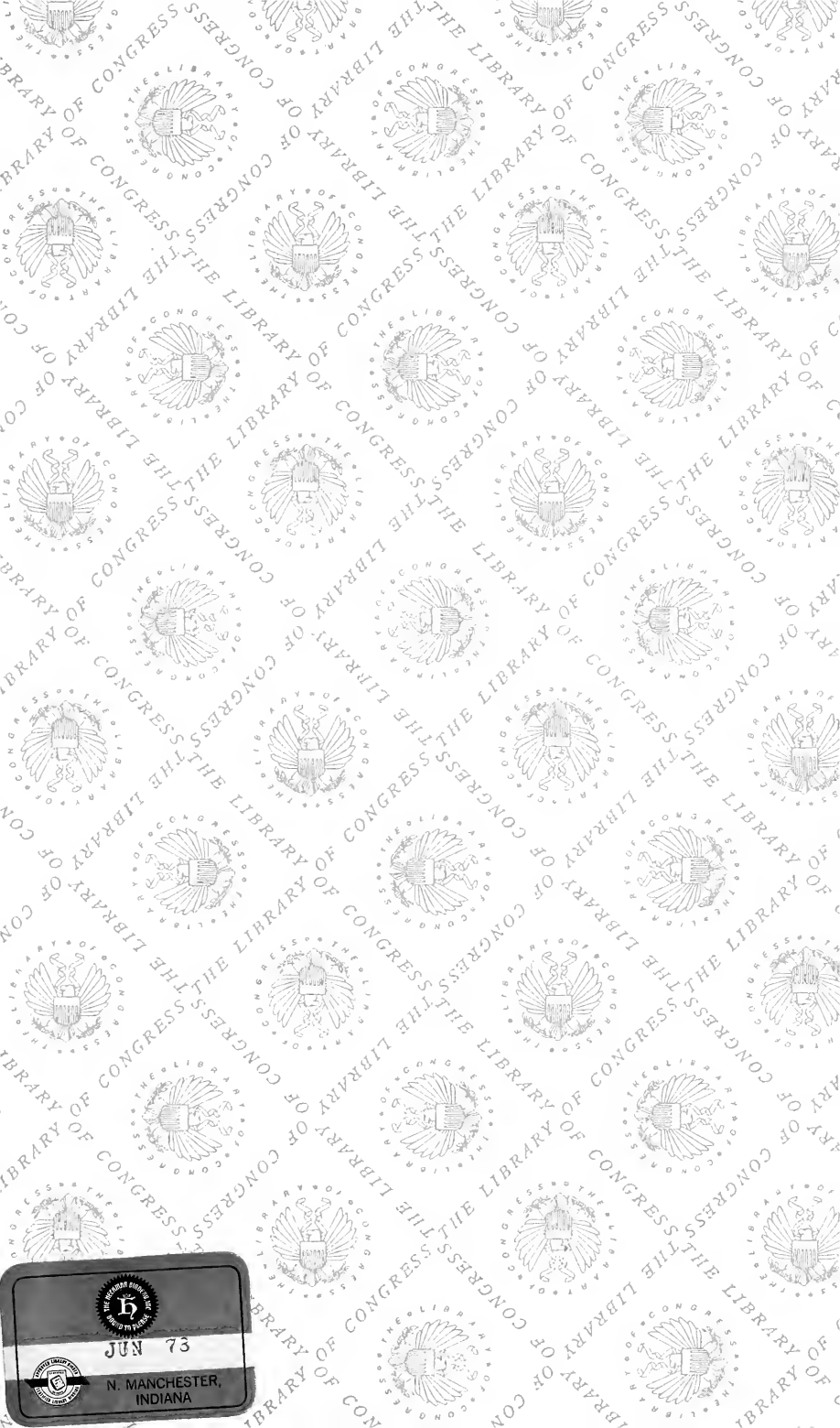




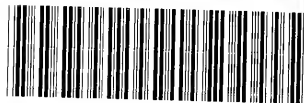
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